

THE PHONOLOGY OF VERBAL FORMS  
IN  
COLLOQUIAL CEYLON TAMIL

ARUNASALAM SANMUGADAS



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TO MANONMANI

"peṇṇit peruntakka ya:vuḷa"

'What is more precious than a wife'

(Tirukkural: 64).



## ABSTRACT OF THESIS

This thesis describes the phonology of the verbal forms in colloquial Ceylon Tamil, for the first time within the framework of generative phonology.

It consists of an introduction, seven chapters, two appendices and a bibliography.

The introduction includes a brief outline of the main features of Ceylon colloquial Tamil, a criticism of the previous work done in Ceylon Tamil, a brief note on the data that is taken up for investigation, and a discussion of the merits of generative phonology.

In Chapter 1, the model that has been proposed to describe the phonology of the verbal forms in colloquial Ceylon Tamil is taken up for discussion. The present model differs from that of Chomsky and Halle (1968) in a number of respects (see below, p. 103).

Chapter 2 provides the forms that have to be accounted for by the rules of the phonology. The constituent structure of a verb form, classification of verbal stems, the grammatical formatives, namely, the suffixes and the tense markers, the derivation of the verbal bases and the nominals and the formation of a complex verb are discussed in detail. All the phonological matrix insertion rules (PMIR) are found in this chapter.

Chapter 3 deals with the positive conditions and the traffic rules. The redundancy rules and the phonological rules

are dealt with in Chapters 4 and 5 respectively.

In Chapter 6, the output of the phonological component (i.e. the systematic phonetic representation) is informally related to articulatory terms of traditional phonetic description. While discussing the phonetic quality of each phonetic segment, reference has been made to palatographic and kymographic evidence.

Chapter 7 provides a summary of the rules of the phonology and a few examples to test the validity of these rules. Each example begins with its underlying surface syntactic form and ends with its systematic phonetic representation. The derivation of the latter from the former is illustrated step by step.

Appendix I lists the verbal stems accounted for in the description. Appendix II lists the grammatical formatives. These two are informally regarded as lexicon 1 and lexicon 2 respectively.

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'Even heaven and earth are not enough to repay

The help that's given when none is received'

(Tirukkural: 111).

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## SYMBOLS AND NOTATIONAL CONVENTIONS

The following symbols are used in examples that are provided in the body of the thesis. These symbols indicate the phonetic quality which is briefly glossed here (cf. Chapter 6 on Phonetic Realization for further discussion):

p	: voiceless bilabial stop.
b	: voiced bilabial stop.
β	: voiced bilabial fricative.
t	: voiceless denti-alveolar stop.
d	: voiced dental stop.
ʈ	: voiceless retroflex stop.
ɖ	: <del>voiced</del> retroflex stop.
<u>t</u>	: voiceless alveolar stop.
c	: voiceless palato-alveolar affricate.
j	: voiced palato-alveolar affricate.
s	: voiceless alveolar fricative.
k	: voiceless velar stop.
g	: voiced velar stop.
x	: voiceless velar fricative.
m	: voiced bilabial nasal.
n	: voiced dental nasal (occurs only in the combination of [nd] ).
ŋ	: voiced retroflex nasal.



n	: voiced alveolar nasal.
ɲ	: voiced palato-alveolar nasal.
ŋ	: voiced velar nasal.
l	: voiced alveolar lateral.
ɭ	: voiced retroflex lateral.
r	: voiced alveolar tap.
R	: voiced retroflex trill.
v	: voiced labio-dental approximant.
y	: voiced palatal approximant.
i	: high front vowel.
ɨ	: high retroflex vowel.
ɯ	: high retracted vowel.
e	: mid front vowel.
ɜ	: mid retroflex vowel.
u	: high back rounded vowel.
ʊ	: high retroflex rounded vowel.
ɯ	: high back unrounded vowel.
ɰ	: high advanced retroflex unrounded vowel.
o	: mid back rounded vowel.
ɤ	: mid retroflex rounded vowel.
ɑ	: low central vowel.
a	: low advanced vowel.
ʌ	: raised central retroflex vowel.
ə	: raised central vowel.
ɛ	: mid front palatalized vowel.

Diacritics

V:	: long.
Ṽ	: nasalised.
Ḷ	: rounded.

The symbol N is used in phonological representations to indicate a nasal homorganic with the following consonant.

A brief note on the transcription employed in writing the names of Tamil books and in rendering quotations from works written in Tamil, has to be given here. The following diacritics are used in writing the names of the Tamil books that are referred to in this thesis:

Ṽ	: long.
Ḷ	: retroflex.

The Tamil orthographic ஐ, ஒ, ன், னீ, ன், ன், ன், ன், are transcribed as ai, au, n, n, gn, n̄, r respectively. When ன் and ன் are homorganic with their following consonants, they are just transcribed with the symbol n (e.g. kancan) Sutantiran).

While quoting from a work written in Tamil, the following symbols, along with those that are presented in Table 1.2 (p. 102), are employed:

<u>symbol</u>	<u>orthographic symbol</u>
<u>n</u>	ன்
<u>l</u>	ன்



$$\left\{ \begin{array}{c} X \\ Y \\ Z \end{array} \right\}$$

English capital letters: variables ranging over feature specifications (that is, over the symbols + and -) in isolated position.

$$\left\{ \begin{array}{c} \alpha \\ \beta \\ \gamma \\ \delta \end{array} \right\}$$

Greek small letters: variables ranging over feature specifications (that is, over the symbols + and -) in sequential positions.

$$\begin{array}{c} R \\ ( \quad ) \end{array} \begin{array}{c} R \\ \end{array}$$

: items enclosed within brackets can reapply optionally.

## SYSTEM OF REFERENCE

When cross references are made, section and, in some instances, subsections of a chapter are given. For example, in a reference like 6.1.2., the first number refers to the chapter, second number refers to the section of that chapter and the third number refers to a subsection of that particular section.

When reference is made to books or articles, the author's name is given first and within brackets the year of publication and, if necessary, the page numbers are given, e.g. Caldwell (1856: 144-5).

## ABBREVIATIONS

The following abbreviations are employed in this thesis:

adj part.	: adjectival participle.
adv part.	: adverbial participle.
<u>AO.</u>	: <u>Archiv Orientální.</u>
app.	: approximant.
asp.	: aspect - as a syntactic feature. aspiration - as a phonological feature.
aux.	: auxiliary.
bck.	: back.
<u>BSOAS.</u>	: <u>Bulletin of the School of Oriental and African Studies.</u>
<u>BSOS.</u>	: <u>Bulletin of the School of Oriental Studies.</u>
C and H.	: Chomsky and Halle (1968).
caus.	: causative.
CCT.	: Ceylon colloquial Tamil.
cns.	: consonant.
cnt.	: continuant.
cond.	: conditional.
comp.	: completive.
dem.	: demonstrative.

dis.	: disgust.
end.	: ending.
eq.	: equal.
fem.	: feminine.
fin.	: finite.
fnt.	: front.
G GP.	: generative phonology.
hon.	: honorific.
hum.	: human.
I.A.T.R.	: International Association of Tamil Research.
ICT.	: Indian colloquial Tamil.
ind.	: indicative.
infin.	: infinitive.
inter.	: interrogative.
imp.	: imperative.
<u>JL</u>	: <u>Journal of Linguistics</u> .
Kym.	: Kymogram.
lat.	: lateral.
<u>Lg.</u>	: <u>Language</u>
lng.	: long.
mas.	: masculine.
med.	: medial.
mod.	: modal.
N	: noun.

nas.	: nasal.
neg.	: negative.
NP.	: noun phrase.
obs.	: obstruent.
opt.	: optative.
PA.	: prosodic analysis.
part.	: participle.
part n.	: participial noun.
PC.	: positive condition.
perf.	: perfective.
Pgm.	: Palatogram.
pl.	: plural.
PMIR.	: phonological matrix insertion rule.
PNG.	: person-number-gender.
pos.	: positive.
pp.	: pages.
prog.	: progressive;
prop.	: proposition.
prt.	: present.
P-rule.	: phonological rule.
pst.	: past.
quot.	: quotative.
RA.	: readjustment rule.
reflex.	: reflexive.
report.	: reportative.
ret.	: retroflex.



rid.	: riddance.
rnd.	: round.
R-rule.	: redundancy rule.
S	: sentence.
suff.	: suffix.
supp.	: supposition.
temp adj.	: temporal adjunct.
tns.	: tense.
<u>TPhS.</u>	: <u>Transactions of the Philological</u> <u>Society.</u>
tr.	: transitive.
tri.	: trial.
T-rule.	: traffic rule.
uti.	: utility.
V.	: verb.
vce.	: voice.
Vn.	: verbal noun.
Vnuc.	: verb nucleus.
VP.	: verb phrase.
Vst.	: verbal stem.
Vst I.	: verbal stem Class I.
Vst II.	: verbal stem Class II.
I.	: first person.
II.	: second person.
III.	: third person.

## O. INTRODUCTION

### O.1 The Tamil Language

Tamil is a Dravidian language. It is the language of Tamil Nadu or the Madras state, though in the northern or western border there are Tamilians who are bilingual, speaking Telugu or Kannada or Malayalam in addition to Tamil, Tamil Nadu coming into contact with the states of Andhra, Mysore and Kerala. Tamil speakers are found in small pockets in Delhi, Bombay, Poona, Ahmedabad, Calcutta, Bangalore, Palghat; People like the Dravidis in Andhra and the Mandyam Brahmins in Mysore speak a kind of Tamil at home (Meenakshisundaran, 1967: iii). Outside India, Tamil is spoken in Ceylon, Malaya, Burma, Fiji and Africa.

Tamil is a language which typically manifests the "diglossia" (Ferguson, 1959) situation well. The following statement by a foreign scholar confirms this fact (Matthews, 1942: 992): "It is a common experience for the foreigner learning Tamil to discover to his dismay that after months of study with grammar and reader and munshi he is able to understand scarcely anything of the language spoken around him. In the villages and the fields, in the bazaars and on the highroads he hears a language which he finds it hard to believe is the language of his study. The

fact is that the language as it is spoken by the great majority of the Tamil people differs considerably from the language as spoken by the educated. And even the educated tend to reserve correctness for the written word and the speech of the formal occasions, lapse readily under more familiar circumstances into the dialect of the masses." The difference between the literary Tamil and colloquial Tamil is well characterized by the above observation. Literary Tamil goes back to the 3rd century B.C. and Tamil classical literature is at least as old as the Christian era, with a continuous stream of original poetry and prose flowing through the centuries up to the present day. The Bhakti cult from the south from Tamil land spread to the north; so did the philosophy of Sankara and Ramanuja. From early times, the Tamil language had the patronage of kings, rulers, and other men of substance, all of whom assisted in its development. In later centuries, the religions of India, like Buddhism and Jainism, made their own contribution to the development of the oldest living language of the Dravidian family. With the arrival of the European communities, from the 15th century onwards, pioneer Christian missionaries made their contribution to the propagation of their faith and to the development of the Tamil language (see, Vithiananthan, 1966: 330-37, for an

interesting account of the pioneer work of the Christians in Ceylon).

One of the literary works that has brought fame to the Tamil language is Tirukkural which has been translated into more than eighty foreign languages. From Tolkāppiyam, the earliest extant Tamil grammar there sprang a strong grammatical tradition. Grammatical treatises like Nannūl, Viṛacōliyam and commentators like Naccinarkkiniyar, Cenavarayar and Ilampuranar have contributed much to the development of this tradition. European grammarians like Beschi, Pope and Caldwell have not only contributed to the development of this tradition, but also made the distinct qualities and the structure of the language known to the western world.

## 0.2 Ceylon Tamils

The second largest population of Tamil speakers live in Ceylon. This fact can be verified with the following statistical evidence presented by Thani Nayagam (to appear) in a paper "The Study of Tamil Groups" to the Third International Conference-Seminar of Tamil Studies held in Paris in July, 1970:

Geographical Distribution and Demographic Statistics  
and Tamil Speakers

I.	India	30,562,706	(1968).
II.	Ceylon	2,371,036	(1953: approx.).
III.	Malaya and Singapore	634,681	(1957).
		23,000	(1947)
			Ceylon Tamils.
IV.	Burma	200,000	(1966).
V.	Indonesia.		
VI.	Viet Nam.		
VII.	Fiji	1,498 households	(1956).
VIII.	New Caledonia, Tahiti,	negligible.	
IX.	Union of South Africa.		
X.	Rhodesia.		
XI.	Mauritius.	44,044	(1963).
XII.	Reunion.		
XIII.	Guadeloupe.		
XIV.	Martinique	14,000 of Tamil origin.	
XV.	Cayenne.		
XVI.	Surinam.		
XVII.	British Guiana.		
XVIII.	Trinidad.		

The reason for the emigration of the Tamil speakers to many parts of the world is summed up by Caldwell (1856: 5) as

follows: "in short, wherever money is to be made, wherever a more apathetic or a more aristocratic people is waiting to be pushed aside, thither swarm the Tamilians, the Greeks or Scotch of the east, the least superstitious and the most enterprising and persevering race of the Hindus".

Let us return now to the discussion of Ceylon Tamils. According to the census taken in 1963, the Ceylon Tamils have been classed under four ethnic groups (All census statistics presented below and in the following pages are from Statistical Pocket Book of Ceylon, 1970, issued by the Department of Cēnsus and Statistics of Ceylon):

(1)	Ceylon Tamils	: 1,170,310.
	Indian Tamils	: 1,122,850.
	Ceylon Moors	: 661,590.
	Indian Moors	: 272,290.

The dialect that has been covered by the present description is that of the first group, i.e., the Ceylon Tamils. The speech of the Indian Tamils and Indian Moors does not in any way differ from the Indian colloquial Tamil. Therefore, it is excluded from the present study. The speech of the Ceylon Moors distinctly differs from that of the Ceylon Tamils. A thorough investigation of their speech has to be made before making any statements about its phonology. Thus the present description does not cover the speech of the



## Ceylon Moors.

Ceylon Tamils live in considerable numbers in almost all the provinces and principal towns of the island (see, Map of Ceylon, p. 7). Owing to the ratio of population the following towns have been referred to as "Tamil Towns":

(2)	<u>Total population</u>	<u>Ceylon Tamils</u>
Jaffna:	613,230	586,970
Batticaloa:	196,090	139,900
Vavuniya:	68,500	43,720
Mannar:	60,180	30,630

Trincomalee, the present writer's home town, was principally a "Tamil Town". But the colonization scheme started by the government during the last two decades has brought many Sinhalese speakers into the area. Now the population ratio is:

(3)	<u>Total population</u>	<u>Ceylon Tamils</u>
Trincomalee:	138,220	51,060

In spite of this ratio, politically, Trincomalee is referred to as a "Tamil Town" even now. The Ceylon Map (see, p. 7) locates the principal towns of the island and the number of Ceylon Tamils living in those areas. The term "Tamil" will, in the present work, be applied to the first group (i.e. Ceylon Tamils) that is referred to in (1).

### 0.3 Ceylon Colloquial Tamil

Ceylon colloquial Tamil (henceforth, CCT) which is the normal informal speech of the Ceylon Tamils, has some distinct qualities that separate it from the Indian colloquial Tamil (henceforth, ICT). The differences can be summarized as follows (see, Shanmugam Pillai, 1967: 18-33):

- (a) nasal ending written forms like [vanda:n], [po:no:m] will retain the final nasal consonant segments in CCT, but in ICT, the final nasal segments are not present, instead the preceding vowels are nasalised. CCT does not possess any nasal vowels.
- (b) instead of /i/ and /u/ in the first syllable of many words as found in CCT, ICT uses /e/ and /o/.

e.g.	<u>CCT</u>	<u>ICT</u>	
	[kuɻu]	[koɻu]	'give'
	[tiɻa]	[teɻa]	'open'

- (c) initial stops of all the Tamil words in CCT are voiceless; but in ICT, voiced stops occur initially in a large number of loan words.

e.g.	<u>CCT</u>	<u>ICT</u>	
	[kavani]	[gavani]	'observe'
	[pali]	[bali]	'succeed'

- (d) the tapped [r] and the trilled [R] have fallen into one in ICT; but in CCT, these form a contrastive pair in the phonological system. Consider for example,



the following forms: [kaɾi] 'charcoal' and [kaɾi] 'curry'. In ICT both will be pronounced as [kaɾi]. But in CCT, the distinction between these two forms can easily be seen.

Apart from the above features, there are further differences between CCT and ICT in terms of morphological and lexical items (see, Shanmugam Pillai, 1967 for further details).

The present work describes the verbal forms of CCT. One important phenomenon that can be observed in the verbal forms is the extreme rarity of foreign words. Thus when an overall phonemic statement for Ceylon colloquial Tamil is made, there should be restrictions regarding the phonological system of the verbal forms. Among the verbal stems listed in Appendix I, the reader may notice that there are very few stems which can be traced back to foreign origin. A few stems like /vacuuli/- (from the Urdu word wasul → vacuuli 'collect') and /cittāari/- (from the Portuguese word citar → cittāari 'summon') are of Urdu and Portuguese origin respectively. Stems such as /koopī/- 'become angry', /kavani/- 'observe', /aticayī/- 'be surprised', /upacari/- 'entertain' are of Sanskrit origin. These verbal stems are formed by the addition of verbalizing suffix /i/ in the place of the last syllable -/am/ of the nominals: /koopam/ 'anger', /kavanam/ 'observation', /aticayam/ 'surprise',

/upacaaram/ 'hospitality' respectively. In the case of the last item the vowel in the penultimate syllable is shortened in the verbal stem (upacaaram → upacari). The formation of the verbal stems /aalooci/- 'consider' and /yooci/ 'think' differs from that of the above. The nominal counterparts of these in Tamil are /aaloocaney/ 'consideration, contemplation' and /yoocaney/ 'thought' which were borrowed from the Sanskrit forms /aaloocanaa/ and /jyoocanaa/. Even this negligible number of verbal stems which can be treated as foreign are Tamilized in terms of the Tamil phonological system.

There are many nominal forms including those which are of English, Portuguese, Dutch, French and German origin which are commonly used in normal speech in CCT. The phonological system of CCT is too rigid to absorb many foreign verbal forms. Thus, if a speaker wants to use a foreign verb like telephone, which is already in use as a nominal form, then he uses an auxiliary verb /pan/- 'do' with it, yielding expressions such as [telippo:m panqirān] 'I am telephoning', [telippo:m panquva:n] 'he will telephone' etc..

A note is necessary on what is meant by 'spoken' Tamil. We can reproduce what Asher (1966: 16) said on this point. Although his observation was about a dialect of ICT, it

correctly portrays the situation prevailing in CCT too:

"The utterances of educated Tamilians may be divided into 'reading style' and 'colloquial style'. The former is the language of formal written prose or that used, in the majority of cases, in public speaking, broadcasting, classroom teaching and so on. The latter is the language of ordinary conversation. These two styles would appear to require separate statements at all levels - phonetic, phonological, grammatical or lexical. Until recent years most analyses of Tamil have, be it tacitly or explicitly, dealt with the 'reading style'". Some educated Tamilians in Ceylon, sometimes, claim that they use the 'reading style' in their ordinary conversation. This, of course, is not true in the majority of the cases. The reasons for the development of this false notion can be summarized as follows:

- (a) Firstly, the statements like "In many respects, the words are pronounced as they are written" (Subrahmanya Sastri, 1934: 54) and "the Jaffna Tamils, long isolated in the north of Ceylon, are noted as having retained many Tamil customs long since lost by their continental kindred and as employing in ordinary speech a form of Tamil closely approaching the classical" (Hornell, 1918-23: 168, as reported in Kuiper, 1962) have

influenced the educated Ceylonese to maintain that their 'colloquial style' is equal to the 'reading style'. If one observes their speech in their homes (with their wives, children and relatives), then it will readily be apparent that this is a false claim.

- (b) Secondly, as Asher (1966) pointed out, most of the previous analyses of Ceylon Tamil have 'tacitly or explicitly' dealt with the 'reading style'. This has strengthened the false notion that ~~was~~ conceived by the educated Ceylon Tamils.

But recently Tamil scholars in Ceylon have become conscious of the fact that their ordinary speech differs from that of the written form. Consequently, many attempts to preserve and to expose the day to day speech of the ordinary Ceylon Tamils in literary works and in short papers, were made. The pioneer attempt was made by Kanapathi Pillai. He portrayed the Jaffna dialect of Tamil in his plays. In his introduction to one of the publications that contains four of his plays, namely, Nānātakam he points out the need for the preservation of the spoken dialect in literary works:

"na:ṭakam enṇpatu ulaka iyalpay ulḷatu ulḷapaṭi  
 ka:ṭṭuvatu. a:kave: vi:ṭṭilum vi:ṭiyilum  
 pe:cuvatupo:lave: araṅkilum a:ṭuva:r pe:cal ve:ṇṭum.  
 ..... koṭuntamiḷmoli avvanna:ṭṭiRke: uriya moliya:m.

a:kave: co:lamanṭalattut tamilar i:lamanṭalattut  
 tamilay aRivataRku vali ya:tu anRiyum uyirulḷa  
 moliyella:m iṭayviṭa:tu ma:Rikkoṇṭe: varum. oruvanay  
 ayntu vayatiR piṭitta paṭamum aympatu vayatiR piṭitta  
 paṭamum oru tanmayava:y irukkumo ..... appaṭiya:yin  
 ovvoru paruvattilum paṭam piṭittal vrumpat takkatu.  
 atupo:lave: avvakka:lattu koṭuntamilayum ti:ṭṭivayttal  
 ve:ṇṭum.

"Drama portrays the day to day life of the people  
 of the world. Therefore, the characters in a play  
 have to speak as ordinary people speak in their  
 homes and on the highroads..... The spoken dia-  
 lect belongs to the place where it is spoken. Thus,  
 what is the way for the Tamil people of Co:lamanṭalam  
 (refers to the Tamils of South India) to know the  
 Tamil dialect of i:lamanṭalam (i.e. Ceylon).  
 Further, all living languages continuously undergo  
 changes. Will a photograph of a person that was  
 taken in his fifth year and another taken in his  
 fiftieth year, be of the same type..... In that  
 case, it is desirable to take a photograph every  
 year. Similarly, the dialect spoken during a period  
 has to be portrayed".

Swamī Vipulananda who refers to Kanapathi Pillai's nāṇātakam



in a paper (1941) insisted that a similar attempt must be made to portray the Batticaloa dialect of Ceylon Tamil in a few plays. His paper pointed out the salient features of the Ceylon spoken Tamil and Indian spoken Tamil.

Nadarajah (1946) dedicated a paper to the Jaffna dialect of Tamil. Many articles on 'Jaffna dialect', 'Batticaloa dialect', 'Trincomalee dialect', 'the Indian dialect in Ceylon' started appearing in the leading Tamil newspapers, namely, Tinakaran, Vīrakēcari and Sutantiran.

Another attempt to preserve the 'colloquial style' was made by Vithiananthan, aRāmalingam and others by editing the folk dramas and songs that are current among the people of Ceylon. This was a conscious attempt made by them, because it is evident from the editorial notes of both Vithiananthan and Ramalingam that their attempt is not only to preserve the folk traditions in dramas and poetry, but also to preserve the colloquial speech that belongs to the Ceylon Tamils. Both of them have published works that contain the Tamil folk songs of Ceylon. Vithiananthan has edited the following folk dramas and songs: (a) Alankārarūpan nāṭakam, (b) Entirīkku emperatōr nāṭakam, (c) Mūvirācakkal nāṭakam, (d) Gnānasountari nāṭakam, (e) Kancan ammānai, (f) Mannār nāṭtuppāṭalkal. Ramalingam has the following publications to his credit: (a) Kirāmak kavik kuyilkaḷin oppārikaḷ, (b) Kaḷavuk kātalar kaiyāṇṭa viṭukataikaḷ, (c) Folk songs of North Ceylon.

Recently there was a controversy among the Ceylon linguists, writers and teachers on the use of colloquial style in literary works. The history of this controversy is worthy of notice. For many centuries, there has been an active relationship between the Ceylon Tamil scholars and their counterparts in Tamil Nadu. Ceylon Tamil scholars like Arumuka Navalar, Thamotharam Pillai, Kathiravel Pillai, Swami Vipulananda, were honoured in Tamil Nadu. Swami Vipulananda was highly honoured for his scholarship by being offered the Chair of Tamil in Annamalai University. He was privileged not only to be the first Tamil to become a Professor of Tamil at Annamalai University, but also to be the first Ceylonese to hold that post. Indian Tamil scholars have always been welcomed in Ceylon. The relationship that existed was so much related that the Ceylonese began calling the South Indian Tamil territory as *ta:yna:ɽu* ('mother land') and Ceylon Tamil territory as *se:yna:ɽu* (child's land). Until the middle part of this century, Ceylon Tamils consciously or unconsciously have thought that their 'mother land' is Tamil Nadu. But during the mid-fifties of this century, Ceylon Tamils began to recognize that Ceylon is their homeland and the struggle for their language rights in the island strengthened this national feeling. Ceylon scholars began to think in terms of 'Ceylon tradition'

in Tamil language and literature. There was a feeling that the Indian writers did not recognize the Ceylon Tamil writings. But now the Ceylon Tamil writers began to think that their writings were not inferior to those of the Indian writers. Further, the introduction of Tamil as a medium of instruction for Tamil students gave the opportunity for many of them to obtain higher education and this increased the number of Tamil writers in Ceylon. At this time an incident occurred. Though it was a very insignificant incident, the effect it had on Ceylon Tamil writers cannot be underestimated. There has been a feeling among the Ceylon writers that the South Indian Tamil journals are purposely not publishing their short stories, novels and plays. There may be many reasons for this. But when the editor of Kalki (a weekly Tamil journal from Madras), Bahiradan, visited Ceylon, some Tamil writers asked him why the Indian Tamil journals do not publish more of their writings. The answer given to this question was: "Ceylon writers are still twenty years behind their counterparts in Tamil Nadu". This statement angered many of the Ceylon Tamil writers. A conscious attempt to show their talents in writing began. They began to portray the life and speech of their own land. Some of the short story writers and novelists began to use the dialects of their own regions. Thus, more and more colloquial style began entering into Ceylon Tamil literature. At this juncture,



there began a strong reaction against this use of colloquialism in literary works. Some scholars branded the ordinary man's speech as ilicanar valakku ('usage of the lower class'). The Tamil pandits and a few others who wanted to exploit the situation vehemently opposed the use of colloquial words in literature. This controversy stimulated the Tamil writers more and more and they continued to use colloquialism in their writings. Some writers began to describe the dialects of their own regions. Newspaper articles on various regional dialects, namely yalppa:ṇattamil (Jaffna dialect), maṭṭakkaḷapputtamil (Batticaloa dialect), tirukko:ṇamalayttamil (Trincomalee dialect), manna:rttamil (Mannar dialect) and malayna:ṭṭuttamil (Up country Indian dialect) began to appear continuously. So far no linguist has undertaken a systematic comparative study of these dialects. One cannot blame anyone for this failure, because the systematic study of each dialect which would in turn become data for a comparative dialect study, is not yet complete. The present writer and his colleague<sup>1</sup> have undertaken to study the phonological system of the verbal forms

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1. Thananjayarajasingham has presented a thesis on "The Phonology of Nominal forms in Jaffna Tamil" to the University of Edinburgh (1972).

and nominal forms respectively in Ceylon colloquial style. Suseendira Rajah (1967) has already presented a thesis on "A descriptive study of Ceylon Tamil (with special reference to Jaffna Tamil)". Batticaloa dialect, which is one of the major dialects of Ceylon has to be explored soon.<sup>2</sup> It is only when a number of such studies have been completed that it will be possible to attempt a comparative statement of the dialect situation in Ceylon Tamil.

#### 0.4 Previous Studies on Ceylon Tamil

So far no books analysing the language of Ceylon Tamil has been published. But there have been a number of papers and three unpublished dissertations on various aspects of Ceylon Tamil. Papers that are taken up for discussion are all published in academic journals only. Let us first examine the papers that deal with the aspect of the phonology of Ceylon Tamil. Before we analyse the works on the

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2. The present writer had the opportunity of working with some informants in Batticaloa. The materials collected are reserved for future study.

phonology of Ceylon Tamil, let us briefly outline the studies undertaken to describe the phonology of both literary and colloquial Tamil. Studies on individual aspects of Tamil phonology began with Bloch (1919) and continued through with several papers by many scholars like Master (1939), Matthews (1943), Swami Vipulananda (1940) etc.. But it is justifiable to say that structural studies of Tamil phonology began with the work of Firth (see, Zvelebil, 1969: 345; Bright and Ramanujan, 1961: 1) and continue through more recent papers by Fowler (1954), Fairbanks (1957), Shanmugam Pillai (1960), Zvelebil (1960, 1961), Kuno (1958), Bright and Ramanujan (1961) and Asher (1966). Two traditions have characterized much of the work in this field. First of these is an emphasis on the formal style of Tamil, to the exclusion of colloquial styles; this is most marked in the writings of Firth, Fowler and Kuno. Second is a tendency to give priority to the phonemic pattern typical of native Tamil vocabulary, relegating the conflicting patterns introduced by loan words to a secondary status; this is the position taken by Fairbanks and Shanmugam Pillai.

Zvelebil's position according to Bright and Ramanujan (1961) is more or less independent of the two traditions

discussed above. They pointed out that his studies "are based on limited corpora and show rather doubtful phonemic methodology; they can not be counted among the best attempts to come to grips with Tamil phonemic problems".

According to Zvelebil (1969: 349 ) the best phonemic solution of the spoken style of Tamil has so far been offered by Bright and Ramanujan. They have departed from both of the traditions mentioned above. While they recognize the value of the existing descriptions of formal Tamil, they feel that justice has not been done to colloquial dialects which constitute the most important field for new research. They have raised a valid objection against Fairbank's assignment of loan-word phonology to a secondary position.

"For the period of Tamil classical literature, an analysis recognizing only a single series of stops may well be valid; but to apply such an analysis to the present day language, when even monolingual speakers have contrasts of voiceless and voiced stops, is simply anachronistic". This statement is valid for the phonology of Ceylon colloquial Tamil, and especially for the phonology of the nominal forms in it. If one analyses the verbal forms of the Ceylon colloquial Tamil, then, owing to the extreme rarity of foreign words in it, an overall phonemic statement of the type offered by Bright and Ramanujan may not be necessary. But if one describes the phonology of both the verbal and nominal

forms of the Ceylon colloquial Tamil, then an overall phonemic statement like that of Bright and Ramanujan may be necessary. In that case, we need not assign a secondary status to loan-word phonology as Fairbanks and certain prosodic phonologists have suggested (see, 0.6 for a discussion on this point).

Asher (1966) can be considered as to be the pioneer in describing a Tamil dialect within the framework of prosodic phonology.

Let us return now to discuss the papers that deal with the aspect of the phonology of Ceylon Tamil. References to the spoken Tamil of Ceylon in general and the Jaffna dialect in particular have been made in Hornell (as reported in Kuiper, 1962), Subrahmanya Sastri (1934) etc.. But papers devoted to an exclusive study of Ceylon Tamil started appearing with Swami Vipulananda (1941) and continue with the papers by Nadarajah (1946), Kuno (1958), Kanapathi Pillai (1958), Shanmugam Pillai (1962), Thananjayarajasingham (1962), Kuiper (1962), Zvelebil (1960 and 1966) and Suseendira Rajah (1966). Among these papers, an overall analysis of phonemic structure of Ceylon Tamil is found only in Kuno. He opens his discussion with the following statement: "This is an attempt to describe the phonemic structure of the spoken Tamil in

Jaffna, which is considered as the standard Tamil in Ceylon". A cursory glance through the examples show that Kuno describes not a 'spoken style', but a 'reading style' of the Jaffna Tamil. For example, words like: vipattu 'danger' mikal 'victory', karka 'to learn', manitan 'man' never occur in the speech of any spoken dialects of Ceylon. They occur only in literary Tamil. Further, the following forms: onru 'one', nērru 'yesterday', enru 'say', which he transcribes phonetically as [onɽu], [ne:ttru] and [enɽu] respectively, do not have this pronunciation in actual colloquial usage. In spoken Tamil these forms occur as /~~on~~ɽu/, /neɽtu/ and /enɽu/ respectively. It is appropriate to quote here what Zvelebil (1969: 348) has said about Kuno's paper: "Susumu Kuno's paper has a misleading title; it does not deal with any truly informal colloquial variety of Tamil, but with quite formal, standardized style of an educated Ceylonese informant. It is otherwise a very neat and lucid description of the phonemic and allophonic inventory". It has to be mentioned here that Kuno has not taken into consideration the phonemic structure of the foreign words that are current in the spoken Tamil of Jaffna.

Among the other papers, the literary Tamil has been compared with the Jaffna and Batticaloa spoken dialects in Vipulananda and with Jaffna spoken Tamil in Nadarajah.



Kanapathi Pillai's paper analyses the phonological peculiarities of the Tamil dialect spoken in the district of Jaffna. When there was much speculation about the pronunciation of stop consonants in Tamil, Kanapathi Pillai's paper threw some light on this aspect; for example, his observation on the realization of /k/ as [h] in intervocalic position. But he has not considered other stop consonants and further his article is too brief to be of much help.

Kuiper in his 'Note on Old Tamil and Jaffna Tamil' stressed the urgent need for exact data on the phonetics of the Tamil dialects of Ceylon. His paper on the whole, defends the theory that the Jaffna dialect with voiceless plosives preserves an antique feature of the language.

Shanmugam Pillai compares the Ceylon colloquial Tamil with his own variety of literary Tamil and colloquial Tamil. He analysed the colloquial speech of two informants from Ceylon. Regarding nasals after stops, he had noticed that the voiced stops after the nasals have a higher list frequency in one informant, and in the other informant's speech, he had found the voiceless stops after the nasals having a higher list frequency. It is worth noting his observation on this phenomenon: "Perhaps this is a transition period in the history of this Ceylon Tamil. The occurrence of the voiceless stops after the nasals reflects the early history of the language, and the voiced stops reflect the developments that have taken place since then. And as for the future, either one of the

two courses are possible - either the voiceless stops after the nasals will become voiced stops and fall in line with LT and CT which is possible considering the increasing contact with Madras state or the voiced stops may become voiceless which is also possible considering the recent trend to preserve consciously the individuality of Ceylon Tamil. The third possibility would be the continuation of the present structure".

Thananjayarajasingham describes some of the phonological features of the Tamil language as spoken in the Jaffna district. He compares the literary Tamil with the spoken dialect. The phonological changes that are referred to in his paper, though worthy of notice, lack a considerable amount of generality. For example, he gives the following example for the velar consonant changing into a palatal one:

-k → c                      iñkē      iñcē                      'here in this place'

and says: "The voiceless velar stop is palatalised into 'c' on account of the front high unrounded vowel". We are not told whether this is a general feature in the dialect or it applies only in this instance. His paper contains many statements of this sort, which, although they have the appearance of general statements, are in fact not so.

Zvelebil was the first to make an attempt to describe all the major dialects of Ceylon Tamil. Since he had attempted to do this task in a short paper, there is a possibility for him to confuse a feature of one dialect with that of the

other. Regarding the phonology of Jaffna Tamil, he notes: "Sometimes /o:/ is realized as a more or less unrounded, mean-mid [ɛ:], cf. [pɛ:y] for pōy". This is a typical characteristic of the Batticaloa dialect. The present writer has never observed this feature in the Jaffna dialect, but had many occasions to hear this pronunciation in the Batticaloa dialect. Consider for example the following literary Tamil sentence:

(a) ni:ŋga<sub>1</sub> po:yvi<sub>2</sub>ttu va:runga<sub>3</sub>

'You (Hon.) please go and come (Hon.)'  
1 2 3

This sentence can be heard in the Jaffna dialect as:

(b) ni:ŋga po:ttu va:ŋgo:

but in the Batticaloa dialect, it can be heard as:

(c) ni:ŋga pe:yttu va:ŋga

The difference that can immediately be noticeable between (b) and (c) is that in the former [o:] occurs in [po:ttu] and [vaŋgo:], whereas in the latter [e:] and [a] occur respectively. Thus, it is highly probable that Zvelebil's statement is more applicable to Batticaloa dialect than the Jaffna dialect.

**Suseendira Rajah** (1966) has made an attempt to present a contrastive study of the consonantal phonemes of Ceylon Tamil and English and thereby pointed out the nature of difficulties encountered by the native speakers of English in

learning Ceylon Tamil as a foreign language. A serious mistake in his analysis is the assignment of the palatal nasal [ɲ] as the allophone to the phoneme /ɳ/. The following is his statement:

"/ɲ/	[ɲ̃]	Palatal nasal. Initially and
		when followed by /ɕ/. Also when
		preceded by /ɛ/ or /i/.
	[ɲ]	Elsewhere".

According to this statement any retroflex nasal that occurs after /i/ will be a palatal nasal. Consider for example the verbal stem /tiɳi/- 'stuck'. This, according to Susseendira Rajah will be <sup>\*</sup>[tiɲi] which is an unacceptable form. There is absolutely no motivation for assigning the palatal nasal as an allophone to the retroflex nasal phoneme. His analysis nevertheless has considerable merit. His observation on the geminate consonants in Tamil has to be referred to here:

"There are geminate consonants in Tamil, e.g. /amma:/ 'mother', /annɛ/ 'elder brother', /vatti/ 'interest'. But in English, geminates do not occur. The geminates will therefore cause difficulty for the English speakers. Across morpheme boundaries geminate situations may occur in English, e.g. one-ness; but they are not pronounced as tensely as those of Tamil geminates. The occlusion of the first consonant in Ceylon geminates is held longer". The present writer's view on the geminate consonants of Ceylon Tamil is expressed elsewhere (see, 1.12.2. pp. 95-100; also 6.2.1. pp. 371-75).

Among the three unpublished dissertations, Thananjaya-rajasingham's work (1961) describes the language of the Tamil Dutch Documents of the 18th century. It deals with the phonology and the syntax of the language that was current during that century. His work is considered to be a pioneer attempt in this field (see, Vithiananthan, 1968: 189). This work will be of much help to a future study of the historical grammar of Ceylon Tamil.

The second thesis is a doctoral dissertation by Susseendira Rajah (1967). It is a descriptive study of Ceylon Tamil with special reference to the Jaffna dialect. As the present writer is unable to obtain access to this work, no comments can be made on this study.

The third thesis is also a doctoral dissertation submitted by Kandiah (1967). It deals with the syntax of the verb in Ceylon Tamil. The difference between the previous two theses and this, is that the former deal with the phonological and syntactic aspects of the language, whereas this one deals only with the syntax of Ceylon Tamil. Moreover, Kandiah's description is made within the framework of transformational generative grammar. A transformational grammar according to Chomsky (1965: 4) strives to describe and explain in explicit terms the 'ideal speaker-hearer's intrinsic competence' with regard to his language, and it does so by formalizing this competence in terms of a finite mechanism which is capable of

generating, and assigning structural descriptions to, all and only the infinitely many sentences in that language. Further, Chomsky (1964: 12) points out that a generative grammar is a system of rules that relate signals to semantic interpretations of these signals. It must at least determine a pairing of signals with structural descriptions; and a theory of generative grammar must provide a general characterization of the class of possible signals (a theory of phonetic representation) and the class of possible structural descriptions. A grammar is descriptively adequate to the extent that it is factually correct in a variety of respects, in particular to the extent that it pairs signals with structural descriptions that do in fact meet empirically given conditions on the semantic interpretations that they support. With particular reference to the last sentence, we may ask the question whether Kandiah's grammar meets that condition. The answer as far as we are concerned is in the negative, because if his grammar is descriptively adequate to the extent that it pairs signals with structural descriptions that in fact meet empirically given conditions on the semantic interpretations, then it would not generate the following sentences:

(a) kosuku paṭuttavaray atikam alakkaṭṭatu

'The mosquito troubled the sleeper a great deal'

(p. 158)



(b) ammaa piḷḷaykku sooRu unḷpittaaḷ

"The mother got the child fed rice" (p. 132)

If any Ceylon Tamil native speaker whether educated or uneducated, whether bilingual or monolingual hears these two sentences, then he will immediately react to say that they are undisputedly not grammatical. These two sentences are neither written nor spoken in Ceylon Tamil. If 'selectional restrictions' or 'restrictions of cooccurrence' (Chomsky, 1965: 95; 'collocation' in Firthian term, see, Firth, 1957: 12) are considered to play an important role in the theory of transformational grammar, then these two sentences would not have been generated by the syntactic model that has been proposed by Kandiah for Ceylon Tamil.

Let us give from his work an example which violates the syntactic pattern of Ceylon Tamil:

(c) elloorum siRumi irakasiyattays sonna viḷayaaḷḷut  
tooḷiyiṭamiruntu atayk kaṇḷupiṭittarkaḷ.

"Every one found the secret out from the playmate  
to whom the little girl had told it" (p. 372)

According to Kandiah this "sentence which, while not being absolutely free of awkwardness, is undisputedly grammatical". First of all, notice that what his English translation says is not found in his Tamil sentence. As it is, his Tamil sentence can be translated as: "Every one found that out from the playmate to whom the little girl had told the secret".



The relative pronoun atay 'that' in the sentence may not necessarily be taken as a substitute for the nominal form irakasiyattay 'secret' in it. But Kandiah believes that the relative pronoun atay is substituting the nominal form irakasiyattay. While discussing Adjectivization transformation (pp. 355 - 77), Kandiah provides the following examples:

(d) kantan kiraamattil piRantaan

"Kandan was born in a village" (p. 370)

(e) Q kiraamam mika a\akaay iruntatu

"The village was very beautiful" (p. 370)

(f) kantan piRanta kiraamam mika a\akaay iruntatu

"The village Kandan was born in was very beautiful"

(p. 370)

and remarks: "The illustrations provided above show that the rule makes two major changes in the string it embeds; it converts the last verbal element of this string into its conjunctive participial form, and deletes its NO, together with any case ending it may take. This latter change appears to result inevitably in the generation of many awkward sentences". Such a sentence according to Kandiah is that which is referred to in (c).

The derivation (c) according to him is by embedding (g) in Q position in (h):

(g) siRumi irakasiyattay vi\ayaa\uttoo\ikkus sonnaa\

"The little girl told her playmate the secret"

(p. 372)

- (h) elloorum Q viḷayaaṭṭuttooḷiyiṭamiruntu atayk  
kaṇṭupiṭittaarkaḷ

"Every one found it out from the playmate" (p. 372)

First of all, let us point out a defect in his second sentence (i.e. (h) ). The word atay in this sentence can mean anything. This pronoun can refer to any object which has already been referred to. But Kandiah presupposes that it refers to the object (i.e. irakasiyattay ) of the first sentence (i.e. (g) ). If he uses the relative pronoun atay instead of the noun irakasiyattay, then he could have used the pronoun atu in sentence (e) instead of the noun kiraamam. If it is allowed, then the transformational rule that deletes one of the identical nouns (i.e. "equi-NP deletion" ) will be blocked. Therefore, the defect in his sentence (h) can not be ignored. It is natural to assume that every sentence is independent of other sentences before it is embedded. If this assumption is accepted, then his sentence (h) should read as:

- (i) elloorum Q viḷayaaṭṭuttooḷiyiṭamiruntu irakasi-  
yattayk kaṇṭupiṭittaarkaḷ

In that case, we have identical objects (i.e. irakasiyattay ) and indirect objects (i.e. viḷayaaṭṭuttooḷi ) in the matrix sentence (j) and in the sentence to be embedded (i.e. (g) ). In such a case, the indirect object in the embedded sentence and the object in the matrix sentence are deleted. Further, the last verbal element which is converted into its conjunct<sup>n</sup>ional participial form and the object in the embedded sentence

are permuted. Thus the derived sentence should read as:

- (k) elloorum siRumi sonna irakasiyattay viḷayaaṭṭut  
tooḷiyiṭamiruntukanṭupiṭittarkaḷ

Kandiah has not provided any rule for the derivation of the above sentence (k). Instead, he tries to derive (c) by the same rule that is designed to derive (f). Thus, not surprisingly, he has to talk about awkwardness in sentence (c) and other sentences that are similar to it. Incidentally, Kandiah's account seems to contain a somewhat high proportion of awkward sentences (see, pp. 370, 374, 394, 405, 406). Is it because the data has not been fully exploited (which he confesses in p. 395: "The ability to delete the possessive elements often remain unexploited because the resulting sentences could be ambiguous as well as, in many instances, highly awkward) or is the machinery he has designed to handle the data not adequate? Although Kandiah's work merits consideration, being a pioneer attempt to describe the syntax of Ceylon Tamil within the framework of transformational grammar, inadequacies in his work of the sort we have mentioned above cannot be ignored.

#### 0.5 Data

The data for the present description is the idiolect of the writer. The speech of the present author can said to represent the colloquial style of Ceylon Tamil (see, pp. 3-7 for the term 'Ceylon Tamil'). Zvelebil (1966: 137-8)

distinguishes four sub-dialects of Ceylon Tamil, namely, North (with Jaffna as centre of prestige), North East (with Trincomalee as centre), South East (with Batticaloa as centre), and possibly Colombo, where a mixed variety is spoken. The present writer was born in Trincomalee in 1940 and his parents who were settled in Trincomalee for more than ten years before he was born, were originally from Jaffna. From 1952 to 1959 and then from 1959 to 1963, the author had to live in Batticaloa and Peradeniya (University area in Kandy) respectively owing to his education. He married a girl from Jaffna and because of this marriage, his home town now, according to Hindu customs, has become that of his bride. Thus the author was exposed to three principal dialects of Ceylon, namely, Trincomalee, Batticaloa and Jaffna. Since his speech has been greatly influenced by these three dialects, it can be referred to as a common dialect which represents the three major sub-dialects of Ceylon. Not surprisingly, some of the special features that are found in the Batticaloa dialect are not found in his speech.

#### 0.6 Generative Phonology

"What is probably the most radical and important change in direction in descriptive linguistics and in linguistic theory that has taken place in recent years may be located in 1957, when Chomsky's Syntactic structures was published, inaugurating the transformational generative phase of linguistics,

so named from the principal distinctive method and orientation of the work taken in hand" (Robins, 1967: 226-7).

Chomsky's phonological theories, some of which were hinted at in his Syntactic structures, are formulated within the framework of the above mentioned model. His phonology is referred to as generative phonology (henceforth, GP). GP can be stated as the reaction against the previously held views of the American phonemicists whose conception of phonological structure is described as 'taxonomic phonemics' (Chomsky, 1964) or 'autonomous phonology' (Postal, 1968). One outstanding feature of modern linguistics in both Europe and America is the development of a new and special conception of phonology involving the 'discovery of phonemes' and the application of 'phonemics' to extremely wide range of languages. An important feature of this dominant conception referred to as 'taxonomic phonemics' is the belief that there is a phonological level of linguistic structure which not only can but must be characterized in total independence of grammatical or syntactic information. But Chomsky from the time of his Syntactic structures has been advocating interdependence of levels. He (1957: 60) observes that the grammar of a language is a complex system with many and varied interconnections between its parts. In order to develop one part of the grammar thoroughly, it is often

useful, or even necessary to have some picture of the character of a completed system. Thus in the GP model developed by Chomsky and Halle (1968), the phrase marker determines the function of the phonological rules. Prosodic phonological analysis too had rejected an independent phonemic representation in a linguistic analysis. Prosodists always presupposed grammatical analysis to state their phonological abstractions and also to formulate statements (or rules) of phonetic exponence (Palmer, 1970: X-XII; Langendoen, 1968: 59; Robins, 1959: 113). But it may be true however that prosodic analysis proponents did not specifically and clearly set up procedures to map surface structures onto phonetic structures thereby positing that the entire surface phrase marker has phonological significance. Robins in his article on "Vowel nasality in Sundanese: A phonological and grammatical study" (1957) claims that the prosodic analysis which he proposes is superior to a phonemic analysis because he predicts all instances of vowel nasalization directly. But Langendoen (1968: 58-9) after discussing this article says that Robins, in order to show that his analysis is superior to a phonemic and morphophonemic analysis, in which morphophonemic vowel nasality is predictable, is required to show that the introduction of a phonemic level results in a complication of the statement of the phonological rules embodied in his description. In this connection Langendoen points out: "Despite this



failure, Robins' article is to be commended for its place in the assault on the position of no 'levels mixing' between phonology and syntax. Robins' position is that morpheme class identification is required in phonological descriptions, placing it in the third position in the hierarchy of increasing freedom to mix levels. The first position, usually identified with C.F.Hockett, B.Bloch and others, countenances strict separation of levels, while the second position, associated with K.L.Pike, allows morpheme boundaries identification to play a phonological role. The fourth position, that of generative phonologists generally, is that the entire surface phrase marker has phonological significance" (see, Vanek, 1970 for an interesting study on the syntactically oriented phonological analysis).

One advantage in the GP model is its formalism. In the field of formalism in which linguistic statements are formed, GP has a decided advantage over other models. One aspect of GP formalism is the use of column-row matrix to represent the simultaneous (rows) and successive (columns) nature of categories or features. It captures the difference between a feature replacement and the change of the whole segment which does not become explicit in non-column-row matrix. Another aspect of GP formalism is the one used to formulate the rules. Numerous conventions for reducing several rules to a single rule or for deleting irrelevant information from



rules have been devised. These constitute useful formalism which expresses the important fact of the content of GP namely its insistence on evaluating the economy of a grammar on the basis of how broad the generalisations are (see, Harms, 1968: 57-76 for illustrations of the abbreviatory devices used in GP).

Unlike prosodic analysis, GP does not assign a secondary status to loan-word phonology. Firth (1948) and Henderson (1951) have claimed that different phonological systems have to be set up for languages that have many foreign words. Firth (1948) had stated that at least three systems have to be set up for Tamil and Telugu, namely, non-Brahmin Dravidian, Sanskrito Dravidian and Sanskritic. Henderson (1951) in her analysis of South Asian languages states that more than one phonological system has to be set up for these languages. The system that is set up for the native forms is to be regarded as the primary system and the systems that are set up for the marginal forms are to be regarded as secondary systems. But the GP model enables one to state overall phonological structure of the both native and non-native forms of a language without assigning a secondary status to non-native forms.

One of the criticisms that has been levelled against GP by Prakasam (1972: 8) is that by bracketing the features that have syntagmatic value with those that do not, it seems

that GP loses some generality. He states his case as follows: "For example in **T**elugu the features of laminality, dorsality, labiality and apicality do not have syntagmatic value but the other features like voice, laterality, nasality and retroflexion have. By not separating them at phonological level one does not know their potential value till going through all the rules of phonological component". According to his statement, one can assume that the features of laminality, dorsality, labiality and apicality are redundant features in Telugu. No one can deny their potential values at the phonetic level on the one hand and the syntagmatic value of the features like voice, laterality, nasality and retroflexion at the phonological level on the other hand. But if one insists on differentiating the former from the latter at the phonological level in order to state their potential values, then the redundant features like laminality, dorsality etc., have to be introduced at the phonological level. This will eventually result in an uneconomical grammar and it will be contradictory to the simplicity criterion that GP has always advocated. Prakasam (1972: 18) has stated elsewhere that "The phonological structures of PA (i.e. prosodic analysis) and GP are abstract but predictably related to phonetic structures through certain rules or statements". If certain features that can only be found in phonetic structures that are realized from the abstract

phonological structures through certain rules, then one has to go through all the rules that derive those phonetic structures in order to know the potential values of those features and others which were in the phonological structures.

The following characteristics of the GP have inspired the present writer to choose it as a framework in order to describe the aspects of the phonology of the verbal forms of the colloquial dialect of Ceylon Tamil: Firstly, the well-developed form of the theory which has been specifically and clearly evaluated in a variety of publications<sup>3</sup>. Thus modifications in language specific terms are easily made for the description of the phonology of Ceylon Colloquial Tamil. Secondly, the model of GP has been built up in such a manner that the phonological representations are well integrated with the grammatical structures. Thirdly, the well-developed and coherent formalism is utilized by generative phonologists to state their rules. Prakasam (1972: 7) who points out

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3. One often made complaint against the theory of prosodic analysis is that it has not been fully evaluated. Langendoen (1968: 60) remarks that "Despite the fact that London school phonologists have been quite articulate in their criticisms of other phonological approaches, they have had little

clearly the virtues of prosodic analysis, has accepted this fact. He says "Formalism used by prosodists for stating their rules, however, is not as coherent and developed as the one utilized by Generative Phonologists to state their rules". Accepting this fact, he attempts to remedy this in his work. Finally, the concepts like 'natural class' and 'simplicity criterion' (see, 1.12.1 for a discussion on these concepts) within the theory of GP have enabled us to describe the phonology of Ceylon colloquial Tamil in terms of highly valued generalisations.

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to say concerning the criteria for evaluating the phonological descriptions, in particular their own." Robins (1969: 109) while reviewing Langendoen's study accepts this criticism. He points out that "the prosodists, including himself, "must bear a large part of the blame for not undertaking a comparable exposition and critique themselves. Langendoen is right in stressing the need for a systematic study of Firth's theories and of the work that has resulted from them".

## CHAPTER ONE

## 1. THE MODEL OF DESCRIPTION

1.1 Generative Transformational Grammar

An attempt is made in this work to describe the phonology of spoken Tamil of Ceylon within the framework of generative phonology. Generative phonology is a part of a monolithic model called generative transformational grammar. The system of generative grammar assumed in this presentation is that which is developed by Chomsky and others.<sup>1</sup> Since the rules of the phonology can refer to morpheme<sup>2</sup> features, morphological boundaries and syntactic features, it is readily apparent that generative phonology cannot be properly understood without some knowledge of other components. For that matter, not only generative phonology but also any type of phonology "should be regarded as a bridge between the grammatical statement and the direct observations that are reported in phonetics" (Palmer, 1958: 225-41). The

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1. For the theory of generative transformational grammar, see, Chomsky, (1957), (1964), (1965), (1966); Katz and Postal, (1964); Lees, (1960); Rosenbaum, (1967); Lakoff, (1970) etc.

2. The term 'morpheme' unless otherwise stated refers to grammatical items. This is also sometimes referred to as 'grammatical formatives'.

grammar of a language consists of the following components:

- (1) I. the base consisting of
  - (a) the base rules
  - (b) the lexicon
- II. the semantic component
- III. the transformational component
- IV. the phonological component

We are not concerned with the semantic component in the present study. The syntactic component consists of a set of base rules (Ia) and transformational rules (III) which together generate all and only <sup>the</sup> sentences of a language. As an output of the syntactic component, a sentence is a string of morphemes with a labelled constituent structure, where a morpheme is a terminal symbol and label is a nonterminal symbol appearing in the syntactic rules. The constituent structure on which the phonological component operates is the so-called surface structure.

The syntactic surface structure which is the input to the phonological component consists of a string of minimal elements that we will call 'morphemes'.<sup>3</sup> Each morpheme is assigned to various categories that determine its abstract underlying form, the syntactic functions it can fulfil, and its semantic properties. The information about formatives

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3. The term 'morpheme' is used here to refer to lexical stems entered in Lexicon 1 and grammatical morphemes



will be presented in a lexicon. So far as phonology is concerned, morphemes are given in the dictionary in the form of a sequence of phonological elements. A phonological element is, in turn, a set of specifications of phonological features such as consonantality, nasality, frontness etc.

To recapitulate, a grammar contains a syntactic component which generates an infinite number of syntactic descriptions of sentences and each such syntactic description contains a deep structure and a surface structure. The semantic component of the grammar assigns a semantic interpretation to each syntactic description, making essential reference to deep structure. The phonological component assigns a phonetic interpretation making reference to properties of the surface structure. With this brief outline of the model of generative transformational grammar, let us examine in detail the model that has been generally used by generativists to describe the phonological component.

## 1.2 The Model Developed by Chomsky and Halle

One of the components of a generative transformational grammar, namely, the phonological component, has been subject to intensive study since the publication of The sound pattern of Russian (1959) by Halle. A full explication of the



generative phonological theory, the model of description and its formalism are given in Chomsky and Halle (1968; henceforth, C and H ). In their framework of the phonological component, C and H have the following levels:

- (a) the underlying dictionary matrix where the items are in maximally nonredundant forms.
- (b) the systematic phonemic level; this has been referred to as fully specified systematic phonemic level (after Stanley, 1967).
- (c) the systematic phonetic level.

Let us briefly examine their proposals in these levels of the phonological component.

(a) the underlying dictionary representation

Although C and H have not explicitly stated that the underlying dictionary representation constitutes one of the levels in their framework of the phonological component, it is implied by their decision to interpose a level of fully specified systematic phonemics between redundancy rules and the phonological rules (see, Brown, 1969: 13-14). So far as the lexicon is concerned they regard it as representing the linguistic competence of the native speaker, in other words the speaker's instinctive knowledge of the language. The native speaker makes use of that knowledge not only in his normal speech, but also in <sup>1</sup>explaining the meaning of a word, in determining whether the verse is properly constructed,

in seeking a word with a particular meaning, and so on. To represent this aspect of linguistic competence, the grammar must contain a lexicon listing the items which ultimately make up the language. According to C and H two types of information are required for a lexical item to be used in a well-formed sentence. First, we must have information about the syntactic and morphological characteristics of the item. The second type of information required for proper use of lexical item relates to its physical, phonetic actualization. This information is provided by phonological matrices in which columns stand for the successive segments and rows represent the features. Regarding lexical and grammatical formatives, they say that certain grammatical formatives appear in the lexicon with other lexical entries and ~~certain~~ other grammatical formatives are introduced directly by the syntactic rules. It seems that the lexical items for the lexical formatives in the surface structure string are introduced by some syntactic lexical rules and this form of syntactic surface structure of strings of grammatical and lexical formatives has been called lexical representation. They say (C and H: 163): "The readjustment rules, which provide a link between syntax and phonology, may slightly modify the syntactically generated surface structure, and they will, furthermore, convert the

string of formatives into what we have called 'phonological representation', introducing various modifications into the lexical representations and eliminating grammatical formatives in favour of phonological matrices.....". It is understood from the preceding statement that the phonological matrices of the lexical and grammatical formatives are introduced by the readjustment rules. But we are not told from where the phonological matrices of "other grammatical formatives introduced directly by the syntactic rules themselves" are supplied. These, obviously, cannot be found in the lexicon. Whether the phonological matrices of these grammatical formatives are introduced by the same syntactic rules or from where they are taken is not clear at all (see, 1.5 and 1.6 where a solution to this problem has been suggested). However, C and H themselves are not clear on this point, for they confess that (p. 10): "our investigation of the effects of surface structure on phonetic representation has not yet reached a level of depth and complexity that requires a detailed, formal analysis of these processes".

(b) systematic phonemic level

Stanley in his paper on "Redundancy rules in phonology" (1967) has made several revisions to the notion of phonological representation that was discussed in Halle (1959) and Chomsky (1964, 1965 and 1966). C and H after

discussing Stanley's proposals, makes the following concluding remarks (p. 387): "We now adopt the convention that a lexical matrix which is incompletely specified is automatically supplied with all features specified in the matrix of M(U) which is the systematic phonemic representation of the lexical entry in question". This statement reveals that the underlying lexical matrices in the surface structure are converted to fully specified systematic phonemic representations by a set of lexical redundancy rules (C and H) or morpheme structure conditions (Stanley). This implies that the C and H's phonological component has a partially specified phonological entry level (which is the syntactic surface structure) and the fully specified systematic phonemic level. Although, the existence of these two distinct levels, apart from the systematic phonetic level, have not been explicitly stated by C and H, the implication is quite clear when one compares their earlier views on this matter. Chomsky in 1964 (p. 68) regarded the lexical entry of the syntactic surface structure as the systematic phonemic level. He observes: "This representation in terms of segments and junctures, with the derived constituent structure of the string still marked (since it plays a role in the determination of phonetic shape by subsequent phonological rules), we will call, tentatively, the level of systematic phonemics implying by the word 'systematic' that

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the choice of elements at this level is deeply determined by properties of both the syntactic and ~~the~~phonological components". In 1966 (pp. 76-81), he maintained the same notion about the systematic phonemic level. It is only after Stanley (1967) that the partially specified lexical entry in the syntactic surface structure was distinguished from the fully specified systematic phonemic level (see, 1.7 and 4.2 for discussion leading to the denial of this level). Even after Stanley's publication, Chomsky's original view regarding the systematic phonemic level has been attested in Harms (1968: 14): "At the systematic phonemic level utterances consist of morphemes and junctures. At the systematic phonetic level the utterances consist of sequences of featurescolumns (corresponding to the phones of a traditional segmental description).... But these features matrices will differ from those at the phonemic level in two important respects; first, they will be fully specified for all classificatory features..... secondly, the features may have numerical values in addition to plus/minus values..". This statement explicitly denies a level called "fully specified systematic phonemics".

Thus, C and H's model, with Stanley's proposals, has a partially specified dictionary entry and a fully specified systematic phonemic level. The latter is derived from the



former by the application of redundancy rules. According to them the redundancy rules apply only within morphemes and those rules state redundancy at the level of systematic phonemics.

(c) systematic phonetic level

The output of the redundancy rules, which is the fully specified systematic phonemic level, is submitted to the phonological rules. The output of the phonological rules, which is the output of the phonological component, is the systematic phonetic level. C and H says that "The phonetic representation consists of a sequence of 'phonetic segments' each of which is nothing other than a set of 'phonetic feature specifications'. A phonetic feature specification consists of a 'phonetic scale' (called a 'phonetic feature') and an integer indicating the position of the phonetic segment in question along this scale". But C and H has not adequately dealt with the problem of specifying phonetic detail at the lowest level. C and H's solution to this problem is to use numerical values as in the case of stress which they have discussed in detail for the English language. Another approach (Wilson, 1966: 195-206) would be to add more binary features for those phonetic distinctions which cannot be stated in terms of the classificatory features.

### 1.3 Revisions to C and H Model

Apart from Stanley's proposals which C and H have already included in their model, there have been three important proposals which can be regarded as revisions to the C and H model. The first proposal made by Sampson (1970: 586-626) claims that pre-Chomskyan linguistics recognized that the phonological systems of natural languages tend to form symmetrical patterns; this insight could be incorporated into generative phonology via a phonological base component, but is not adequately expressed by MS rules. A phonological base would also solve some difficulties in the theory of systematic phonetics. Current lack of interest in phonological patterning has resulted from the increased attention paid to morphophonemics; but the deep vs. surface distinction in phonology can be demonstrated on the basis of patterning even in languages lacking morphophonemic alternation. Sampson shows that the advantage of having a phonological base is that it will eliminate the MS rules/conditions in favour of the base. Further, he doubts the existence of P-rules in a synchronic model of language. According to him rules that represent historical reality have no place in synchronic analysis. Having discussed four Vietnamese phonological rules, he points out that "The arguments that rules R1-4 are historical statements, and

that the modern Vietnamese has no motivation to incorporate them into his knowledge of the language, can, it seems to me, be applied equally against recognizing the synchronic validity of, for instance, C and H's P-rules for English". (see, 2.5 for an objection raised against Bright and Lindenberg for using dental obstruent as past tense marker in Tamil).

Although some of Sampson's arguments against the C and H model have been incorporated into the present model of description, his proposal to set up a separate phonological base component is not considered.

The second proposal to revise the C and H model was made by Fudge. According to him (1969) the phonological component should be independent of the syntactic component. Following Cheng (1966) he made a proposal for a syllable generator and in his presentation syllables are considered to be phonological primes which control the systematic phonemes. The difference between Sampson's phonological base and Fudge's syllable generator is that the former is intended to be a part of the structure of a monolithic model proposed by C and H; but the latter is regarded as an independent component. Since the present model of description is intended to be a part of the monolithic transformational generative grammar, Fudge's proposal is not considered.

The third proposal was put forward by Brown (1969, 1971). Since most of her proposals are included into the present model of description, the references made to her works in the course of this and the following chapters will reveal how far her arguments are valid and how far the present author is indebted to her. Certain modifications made to her model are discussed in the next section (1.4).

#### 1.4 Model Proposed for the Description of Tamil

Brown's (1971) model used for the description of the phonology of Lumasaaba has been found useful to describe the phonology of Tamil. We are using her model for the present description with certain modifications. The modifications, for instance, are made in the redundancy rules, the traffic rules and the readjustment rules. In her model the redundancy rules are conditioned to apply upto the domain of a phonological word, but in the present model no boundary restrictions are made on these rules (see, 1.7 and 4.3). Traffic rules in her description are intermixed with other redundancy rules; but we have included them in the readjustment component (see, 1.8). Readjustment rules according to Brown insert phonological word boundaries, delete morpheme boundaries. But for the phonological description of Tamil, the concept of readjustment rules has



to be changed (see, 1.6 for details). The introduction of phonological matrix insertion rules (henceforth, PMIR) in the lexicon is a new attempt in the present model (1.5). Let us first give a brief sketch of the outline of the proposed model of description (see, Table 1.1).

(a) the lexicon

The lexicon is divided into two parts, namely, lexicon 1 and lexicon 2. All the lexical verbal stems are entered in the former, while the latter will consist of all the Tamil grammatical formatives or morphemes. An ordered set of PMIR which operate on the lexicon is regarded as inserting the appropriate phonological matrices of the verbal stems from lexicon 1 and of the grammatical morphemes from lexicon 2, into the syntactic surface structure. When the grammatical morphemes are inserted, the PMIR are stipulated to add with them a feature called [+G] (i.e. +Grammatical).

(b) the readjustment component

The readjustment component consists of three sets of rules, namely, the positive conditions, traffic rules and the readjustment rules. The former two are ordered before the latter. The positive conditions (see, Stanley, 1967; Brown, 1971) which operate on the lexical and grammatical

formatives that are in the surface syntactic structure state the regularities of the internal organization of the morphemes and the phonological words. An ordered set of traffic rules which operate on the phonological matrices of the syntactic surface structure, will mark those elements that have to be submitted to the P-rules with the feature [+P-rule x]. The appropriate number of the P-rule that should operate on a marked element, will be given with this feature (+P-rule is phonological rule). The readjustment rules which operate after the traffic rules delete all morpheme and phonological word boundary (a phonological word boundary marker is deleted when it is followed by the feature [+G]) markers if the matrix does not contain the feature [+P-rule]. If a matrix contains the feature [+P-rule], then the boundary marker that precedes or follows the element that is marked with the feature will not be erased. But in certain instances, a phonological word boundary will be changed to a morpheme boundary (see, 1.9 for further details).

(c) the redundancy rules

The partially specified (i.e. maximally nonredundant) phonological matrices that are inserted into the syntactic surface structure, after being readjusted by the rules of the readjustment component, enter the redundancy rules which



specify the redundant features. The redundancy rules are regarded as realization rules (Fudge, 1967, 1969; Brown, 1969, 1971). Thus the majority of the underlying phonological matrices of Tamil, which are not marked by the traffic rules, emerge into their phonetic realizations when their redundant features are filled in by the redundancy rules. Apart from the function of filling in the redundant features, the redundancy rules also add predictable new segments to the underlying matrices (insertion of epenthetic vowel, for instance). These rules perform only the operation of simple additioning transformations. They do not change any feature values. The redundancy rules apply within and across morpheme and phonological word boundaries.

(d) the phonological rules

Those matrices which carry the feature [+P-rule x] will be fully specified by the redundancy rules and will be submitted to the phonological rules. The phonological rules are regarded as mutation rules (Fudge, 1967, 1969; Brown, 1969, 1971). They are needed in the phonology only when certain feature values of some underlying elements are to be changed or when certain underlying elements are to be deleted. After the completion of the application of the phonological rules, the matrices will be recycled through the redundancy rules which specify phonetic realizations to

them. The boundary markers are erased at the completion of redundancy rules.

(e) the features

The underlying phonological elements and the phonetic segments, are formally treated as complexes of features. But they are informally represented by the alphabetic symbols. In Table 1.3 (presented in 1.9.3), the primary features that characterise the underlying elements are presented in an informal classificatory matrix, where the alphabetic symbols that we will be using freely in discussions are to be regarded as nothing more than convenient ad hoc abbreviations for feature bundles. At the level of underlying phonological representation, the feature complex will be referred to as an underlying element; at the level of phonetic representation (see, Chapter 6), it will be referred to as a segment.

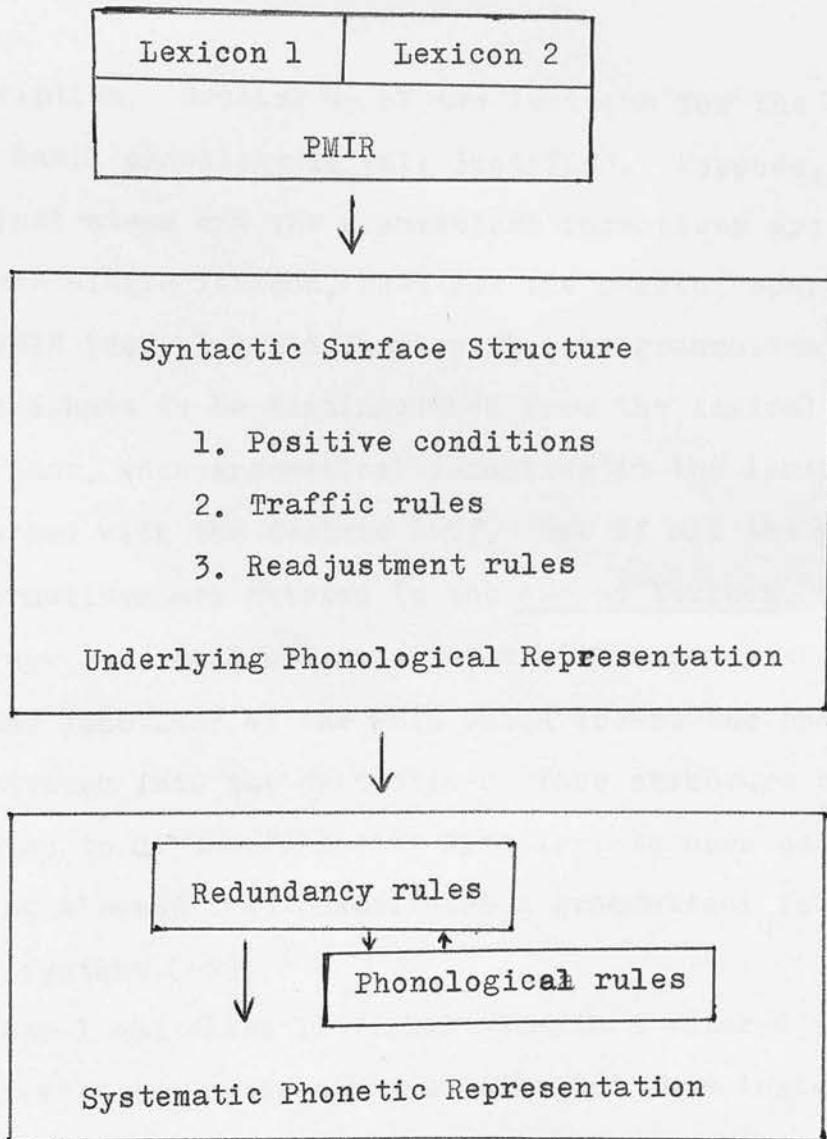
The twenty four underlying elements presented in Table 1.3 are regarded as pairwise distinct. That is, suppose /A, B/ is any pair of those underlying elements and [F<sub>1</sub>.....F<sub>r</sub>] the list of distinctive features, there is at least one feature F<sub>i</sub> which is marked + for A and - for B or vice versa. This definition of pairwise distinctiveness is extended to characterise a general 'distinctiveness criterion' for segment types. One feature, namely

consonantal, for which all underlying elements are marked.

The outline sketch of the proposed model for the description of Tamil phonology enables us to recognize only two significant levels, namely, the underlying partially specified phonological structure and the systematic phonetic representation. A level called fully specified systematic phonemic level is not recognized in this model. As noted earlier in 1.4.(e), the underlying phonological matrices and phonetic representations are expressed formally in terms of feature matrices, but in the exemplification the informal alphabetic representation is used. The underlying elements written between slant brackets //, and the phonetic segments are enclosed within square brackets []. The transcription employed for the latter is not strictly a narrow one, although the formal feature matrix would require such a transcription especially for nonconsonants (for example, the transcription employed to characterise the vowels which acquire the feature retroflex, see, 6.2.2). A diagrammatic sketch of the proposed model is presented in Table 1.1 (p.57).

### 1.5 The Lexicon

On the suggestion made by Schachter and Fromkin (1968), Brown (1969, 1971) made a proposal to set up a second lexicon from where the grammatical formatives are supplied. Following them, we have set up two lexicons in the present model



The Proposed Model of Description

Table 1.1

of description. Setting up of two lexicons for the description of Tamil phonology is well justified. Suppose, both the lexical stems and the grammatical formatives are entered in one single lexicon, then for the correct operation of the PMIR (see, 1.7 and Chapter 2), the grammatical formatives have to be distinguished from the lexical stems. In that case, each grammatical formative in the lexicon has to be marked with the feature [+G]. But if all the grammatical formatives are entered in the second lexicon, then the feature [+G] need not be entered with each of them. One of the functions of the PMIR which insert the phonological matrices into the syntactic surface structure can be conditioned to do the following function: to mark each underlying element that constitutes a grammatical formative with the feature [+G].

Class I and class II verbal stems are entered in lexicon 1 with the necessary syntactic and phonological features. The grammatical formatives are entered in lexicon 2. They also carry the necessary syntactic and phonological features. The phonological features are presented in matrix, where the columns stand for underlying elements and rows for phonological features. The appendices that are attached with this work can be regarded as informal lexicon 1 and lexicon 2 respectively. But no phonological matrices are given in these appendices.

1.6 PMIR

The term and the concept of PMIR is borrowed from Vanek (1970: 306-39). The introduction of this kind of rules in the grammar is motivated by the proposal to build up a syntactically oriented phonological analysis and by the desire for economical lexicon. According to Vanek (p. 307) a syntactically oriented phonological analysis requires that the investigator look beyond the underlying phonological representations. It implies correlation of the output of the syntactic component with the input into the phonological component. This correlation can be achieved by associating the individual syntactic feature sets of the surface structure (the final derived P-marker) with their appropriate phonological matrices which, in turn, constitute the underlying phonological representations. It seems only then can phonological analysis achieve an effective link-up with syntactic analysis.

Consider for example the following verbal stems:

- |     |     |            |                          |                    |
|-----|-----|------------|--------------------------|--------------------|
| (1) | (a) | naqa       | 'walk'                   | (imperative)       |
|     | (b) | naqattu    | 'cause to walk'          | (imp.)             |
|     | (c) | naqappi    | 'cause to walk'          | (imp.)             |
|     | (d) | naqattuvi  | 'cause to cause to walk' | (imp.)             |
|     | (e) | naqe       | 'walk'                   | (noun)             |
|     | (f) | naqandavan | 'he who walked'          | (participial noun) |



If we claim that (a) to (f) are separate lexical entries, then we will miss an important generalisation and the result would be an uneconomical lexicon. It is evident that all the items in (a) to (f) share a common root or stem (see, 2.1 p. 110 for a definition of stem) and that they are closely related semantically. In fact, the difference in meaning that exists between the members of each set can be traced to the presence or absence of transitive and/or causative; or to the presence or absence of verbal noun or participial noun. Thus to claim that we are dealing with separate lexical items is to miss the fact that the constituents of each set can be differentiated on the basis of the same syntactic features, and this phenomenon can be dealt with in a general way. Moreover, the Tamil verbs which express transitivity, causativity, verbal noun, or participial noun are formed by adding suffixes. This fact suggests that the presence of a feature like [+causative], [+transitive], [+verbal noun] or [+participial noun] with the verbal stem in lexicon 1 and similar features with their respective suffixes in lexicon 2 can be regarded as sufficient information for the PMIR to insert the appropriate phonological matrices of the lexical stems and the grammatical suffixes (see, Chapter 2 for further details on the application of PMIR).

The introduction of syntactic features with phonological matrices into the syntactic surface structure enables us to introduce syntactic features into the rules of the phonology. It has a definite advantage on the formation of the rules. While each phonological segment contains only specific phonological features and is independent of all other segments that adjoin it, the syntactic features range over the entire set of phonological matrices associated with the verbal stems and grammatical formatives. Thus reference to a phonological feature affects only the phonological segment of which that feature is a part, but reference to a syntactic feature in a rule of the phonology affects the entire sequence of phonological segments over which the syntactic feature ranges. Consider for example the verbal noun formations from the stems: /cu/ - 'shoot' and /pa/ - 'suffer'. These stems take the verbal noun suffix -/u/ and while they take this suffix, the preceding vowels of their final consonants are lengthened. Thus the final derived forms will be /cu/ + u/ → [su:qu] and /pa/ + u/ → [pa:qu]. The lengthening of the vowel in these instances cannot be stated to the effect of (2):

$$(2) \begin{bmatrix} -cns \\ -lng \end{bmatrix} \rightarrow [+lng] \quad / \quad - \begin{bmatrix} +obs \\ +ret \end{bmatrix} \begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix}$$

because it will lengthen the vowels in the following instances

where the verbal stem /cu/ for instance, is followed by an imperative suffix -/u/ or by an epenthetic vowel -/u/- which is introduced R7 (R stands for redundancy rule):

(3) (a) /cu/ + u /

(b) /cu/ + v + an/ → /cu/ + uv + an/

A rule like (2) cannot be prevented from applying to the forms in (3) and thus yielding unacceptable expressions such as:

(4) (a) \* [su:du] 'shoot' (imperative)

(b) \* [su:quvan] 'I will shoot'

application of rule (2) to the sequences in (3) can be stopped by assigning the syntactic feature [+Vn] (i.e. verbal noun) to the nonconsonant that occurs after the environment bar.

Rule (2) can now be presented as (5):

(5) 
$$\begin{bmatrix} -cns \\ -lng \end{bmatrix} \rightarrow [+lng] / \text{---} \begin{bmatrix} +obs \\ +ret \end{bmatrix} \begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \\ +Vn_4 \end{bmatrix}$$

This rule now will not operate when the imperative suffix -/u/ or the epenthetic vowel -/u/- occur with the stems /cu/ or /pa/.

Introduction of such syntactic features suggests that the syntactic boundaries are no longer required in the majority of cases.

### 1.7 Positive Conditions

The positive conditions operate on the phonological matrices that are inserted by the PMIR into the syntactic surface structure. The structures of the lexical formatives, grammatical formatives and phonological words; the maximum sequence of vowels or consonants in each of these will be made explicit by these conditions. Once these conditions are formulated, all other rules of Tamil phonology are in conformity with them. They cannot contradict these rules. Hence they are referred to as meta rules.

The presence of the positive conditions in the present description is highly motivated. There are certain characteristics of the dialect under investigation which are always true in all levels of the grammar. One of those characteristics is the restriction placed on the units that occur at the beginning or at the end of a phonological word. For example, a phonological word in Tamil cannot be begun with any retroflex consonant. If such a consonant does occur initially, then the particular item can safely be regarded as a non-native word. No consonant clusters ever occur at the beginning of a Tamil word. These regularities found in the structure of the lexical stems, grammatical formatives and phonological words cannot be stated by either redundancy rules or phonological rules. Thus a set of statements that positively state the regularities of the language is needed

in the grammar. Hence, the presence of positive conditions within the present model of description.

The positive conditions are a set of unordered statements. They state the general structure of a lexical item, grammatical formative, phonological word using the universal symbols C and V which represent consonants and nonconsonants respectively.

Since these conditions are stated at the phonological level with due consideration of the syntactic boundary markers, they are ordered to apply before the traffic rules and the readjustment rules. A detailed analysis of the positive conditions is taken up in Chapter 3.

### 1.8 Traffic Rules

The concept and the function of the traffic rules are discussed in detail in Chapter 3. But a brief note on their place within this model has to be stated here. According to the conventions discussed in 1.9, the underlying phonological structure of the phonetic expressions [paɕippa:] 'she (hon.) will study' [ke:kkɪRa:] 'you are asking' will be:

- (6)            (a) ++ paɕi ++ pp + aa ++  
                  (b) ++ keeɭ ++ kkiR + aay ++

In the case of 6(a) the matrix needs no entry into the phonological rules. Thus according to the readjustment rules (see, pp. 75 ) except for the phonological word boundary

markers at the beginning and the end of the string, all other boundary markers are erased and it enters the redundancy rules which specify phonetic realization. At the completion of the application of R-rules, the phonological word boundaries on the either side of the string will automatically be deleted. In the case of 6(b), the retroflex lateral in the lexical stem and the approximant in the final suffix are deleted by phonological rules (see, P1 in p. 348 and P2 in p. 351). Therefore, they have to be marked to enter into these rules. The traffic rules T1 and T2 (see, pp. 271-2) will mark the retroflex lateral and the approximant with the features [+P1] and [+P2] respectively. The readjustment rules are conditioned to erase all morpheme boundary markers and phonological word boundaries (in certain situations only; i.e. a phonological word boundary which is not followed by the feature [+G] is never deleted by the readjustment rules; instead, such phonological word boundaries will automatically be deleted at the completion of the application of R-rules) if they are not referred to by any traffic rules. Thus the matrix in 6(b) will be converted into (7):

(7) ++ ke:ɭ    ++ k    kiR + a: y    ++  
               +P1        +G                    +P2

The traffic rule T2 which introduced the feature [+P2] to the approximant in the last suffix refers to the morpheme boundary that precedes and the phonological word boundary



that follows this suffix. Thus, when the readjustment rules apply to (7), the string will be converted into (8):

(8) ++ ke:ɭ kkiR + a:y ++

The preceding discussion shows that the traffic rules have to be ordered before the readjustment rules. In Brown's model, these rules were intermixed with the redundancy rules (1971: 72-3). But in the present model, they cannot be stated with the redundancy rules. The information supplied by the traffic rules is needed for the correct application of the readjustment rules and the redundancy rules that follow them. However, the traffic rules like the redundancy rules are stated in terms of if-then conditions (Stanley, 1967). Further, they, like the redundancy rules are an unordered set of rules.

### 1.9 Readjustment Rules

The surface structure required as input to the phonological component will not in all cases be identical with the surface structure that can be syntactically motivated. Consider for example sentences such as (9), where the four noun phrases in the predicate of the utterance (10):

(9) peɖiyan [ paɭɭiya:la vanda [vi:tɭa po:yc  
[ca:ppiɭɭiɭɭu [ma:mi vi:tɭa]]]] o:ɖi:tɭa:n

(10) paɭɭiya:la vanda peɖiyan vi:tɭa po:yc ca:ppiɭɭ-  
           1          2          3          4          5          6  
       iɭɭu ma:mi vi:tɭa o:ɖi:tɭa:n.  
           7          8          9

'The boy who came from the school having gone  
           3          2          1                  5  
 home having eaten ran to aunt's house'.  
           4          6          9  8  7          8

But the intonational structure of the utterance (10) does not correspond to the surface structure in (9). The major breaks in (10) according to the intonational structure shall be:

(11) paḷḷiya:la vanda peḍiyan -  
       vi:tta po:ye ca:ppiṭṭiṭtu -  
       ma:mi vi:tta o:ḍi:ttā:n -

Each cut in (11) can be referred to as a phonological phrase. The readjustment rules of the grammar should be able to apply to the syntactically generated surface structure to demarcate the strings which are referred to as phonological phrases. Since this work is not committed to an analysis of stress, intonation, etc. of an utterance, such readjustment rules which assign the feature [+phonological phrase boundary] (see, C and H: 372) are not included in the present description.

Phonological word boundary (symbolized ++) plays a role in defining the notion word in Tamil, which as we shall see, is crucial for phonology since it constitutes the domain of application of certain rules. Before we discuss the phonological word in Tamil, let us examine the grammatical cohesion of the word. This is commonly discussed in terms of

two criteria: positional mobility and uninterruptability (see, Lyons, 1968: 202-60). The first criterion, namely, positional mobility, has been explained by Lyons with the following example:

the - boy - s - walk - ed - slow - ly - up - the - hill  
 1        2        3        4        5        6        7        8        9        10

Various permutations are possible in this sentence which can be regarded as a combination of ten English morphemes:

slow - ly - the - boy - s - walk - ed - up - the - hill.

up - the - hill - slow - ly - walk - ed - the - boy - s.

The possibility of these permutations demonstrate the positionally mobile nature of the English words. But under all these permutations certain pairs or triples of morphemes will behave as 'blocks', not only occurring always together, but also in the same order relative to one another: there is no possibility of the sequence 321\* (s-boy-the) or 54\* (ed-walk). This characteristic of the word is considered to be the second criterion, namely, the uninterruptability.

Of these two criteria, the first one may not be applicable in all instances in Tamil. Consider the following sentence, which we have segmented into ten morphemes:

(12) anda - vi:ll - ila - iru - nd - a - peqiyān -  
       1        2        3        4        5        6        7  
       - va: - R - a:n  
           8        9        10

This sentence can be regarded as a combination of ten Tamil

morphemes, which occur in a particular order relative to one another. But there seem to be more restrictions on possible permutations in this Tamil sentence than in the Lyons sentence.

Permutations such as:

\*  
(13) iru - nd - a - anda - vi:ɽɽ - ɪla - peɽiyan -  
- va: - R - a:n

\*  
(14) anda - iru - nd - a - vi:ɽɽ - ɪla - peɽiyan -  
- va: - R - a:n

will render unacceptable utterances, whereas, permutations such as:

(15) vi:ɽɽ - ɪla - iru - nd - a - anda - peɽiyan -  
- va: - R - a:n

(16) iru - nd - a - vi:ɽɽ - ɪla - anda - peɽiyan -  
- va: - R - a:n

may render sentences with different syntactic structures and meanings.

As far as the second criterion is concerned, the Tamil morphemes behave as 'blocks' not only occurring always together, but also in the same order relative to one another. Thus there is no possibility of the sequence 546\* ( nd-iru-a) or 1098\* ( a:n-R-va:) of (12). Therefore, the Tamil sentence can be regarded as internally stable at the word-rank as well as within words (Lyons, 1968: 203).

Apart from the notion of internal stability, the phonological word in Tamil can be defined according to the restricted

set of phonological units that occur at the beginning or end of a word but not in other positions. The inventory of items that can occur in a given place in words would be different if one takes into account nominal forms and verbal forms rather than just verbals. The following statements are made only with reference to verbal forms:

- (17) (a) a phonological word can only begin with one of the following elements: /a, aa, i, ii, u, uu, e, ee, o, oo, k, t, p, m, n, y, v/  
 (b) a phonological word can end only with one of the following elements: / a, aa, i, u, ee, oo, r, n, l, ɭ, y/

Among these /n, l, ɭ/ will be final elements only when the phonological word consists of more than one syllable. /r/ will be a final element only when it is preceded by a long nonconsonant.

C and H's notion of phonological word is found to be useful to define the Tamil phonological word. They postulate that the phonological boundary ++, appears in the phonological surface structure primarily, but not exclusively, as the result of the following general convention:

- (18) "The boundary ++ is automatically inserted at the beginning and end of every string dominated by a major category, i.e., by one of the lexical categories 'noun', 'verb', 'adjective' or by a

category such as 'sentence', 'noun phrase', 'verb phrase' which dominates a lexical category".

(p. 366).

In all other cases, it is assumed that the morpheme boundary + is inserted. If we allow this general convention in the present description, then we will have expressions such as (20).

Consider for example the phonetic expressions such as:

- (19) [kaqippa:n] 'he will bite'  
 [naqandan] 'I walked'  
 [equtta:] 'she took'  
 [avi]udu] 'it becomes loose'  
 [paqiccavan] 'he who studied'

In the underlying phonological structure, the general convention (18) will assign an internal ++ boundary in these expressions because they contain the elements kaqi, naqa, equ, avi], paqi, avan, each of which belongs to a lexical category. Thus according to the general convention (18), the phonetic expressions in (19) will have the following boundary markers inserted in their underlying forms:

- (20) [V++[V++ka[i++]V pp + aan ++]V  
 [V++[V++na[o++]V [+nas][+obs] + an]++]V  
 [V++[V++e[u++]V [+obs][+obs] + ad] ++]V  
 [V++[V++avi]++]V utu ++]V  
 [V++[V++pa[i++]V [+obs][+obs] [N++avan++]N ++]V



The occurrence of internal ++ is quite important as far as Tamil phonological words are concerned. We have kaṭi, naṭa, eṭu, aviḷ, and paṭi as separate imperative verbal forms, all of which are phonological words. These imperative verbs are not formed by adding any suffixes. But in expressions that are found in (11), although these forms are present, they are not phonological words in such cases. Therefore, as C and H have suggested, we need a readjustment rule that deletes the internal occurrence of ++ in these instances. A sufficient condition to delete a phonological word boundary is the case where such a boundary is followed by any element that consists of the feature [+G]. As we noted above, the imperatives kaṭi, naṭa, etc., will not have any suffixes following them. In 1.4.(a), we mentioned that all items that are taken from lexicon 2 by the PMIR are inserted into the surface syntactic structure with the feature [+G]. Thus, for imperatives which are formed without any grammatical suffixes from the second lexicon will not have the feature [+G] following them. Thus, the ++ boundary assigned by convention (18) to these forms will not be deleted; but in all other cases when this boundary is followed by the feature [+G], it can be deleted. Before we formulate a readjustment rule to this effect, let us examine the position of the morpheme boundary (+).

The morpheme boundary has a unique status in C and H's

model. C and H in their discussion on the status of morpheme boundary establish the following convention:

"Any rule which applies to a strings of the form XYZ also applies to strings of the form X+Y+Z, XY+Z, X+YZ where X,Y,Z, stand for sequences of zero or more units and + represents formative boundary. In other words a rule in which the presence of formative boundary is not explicitly indicated applies also to strings containing any number of formative boundaries" (p. 364).

This convention in their formulation applies only to phonological rules. According to them redundancy rules (MS rules of Halle, 1959; lexical redundancy rules of C and H; Morpheme structure conditions of Stanley, 1967) are not conditioned to apply across morpheme boundaries. Therefore the above convention is not applicable to redundancy rules. But if its application were extended to redundancy rules also, as has been done in the case of the phonology of Lumasaaba, a considerable saving might be effected in the phonological rules (Brown, 1971: 52-4). In the present model of description, the morpheme boundary plays no significant role in the majority of the phonological matrices, for the reason that the R-rules of the phonology are not restricted in terms of morpheme boundaries. The present model provides the majority of the underlying phonological matrices to emerge in their phonetic representations by the application of the redundancy rules

alone. If an element or elements in a matrix need a change in their feature values, then that matrix has to be submitted to the P-rules which are considered to be mutation rules. These elements that have to be submitted to the P-rules are identified by the traffic rules and the feature [+P-rule x] is inserted. The boundary markers that precede and follow any element that has the feature [+P-rule x] and are referred to in the appropriate traffic rule will not be erased, by the readjustment rule. Earlier, we noted that ++ boundary will be deleted when it is followed by the feature [+G]. But if this boundary marker is followed by an element which carries the features  $\begin{bmatrix} +G \\ +P \end{bmatrix}$ , then it will be changed to a morpheme boundary.

To recapitulate, the PMIR will insert the phonological matrices of the lexical and grammatical items from lexicon 1 and lexicon 2 respectively into the syntactic surface structure assigning the feature [+G] to all items that are taken from lexicon 2. Now the syntactic surface structure with the lexical and grammatical entries, will be assigned with the boundary markers according to the conditions 17(a) and 17(b) and the convention (18). The traffic rules identify those elements that need to be submitted to the P-rules and they mark them with the feature [+P-rule x]. The readjustment rules that apply to this structure:

- (a) delete all morpheme boundaries if they are not referred to by traffic rules.
- (b) delete a phonological word boundary if it is followed by [+G].
- (c) change a phonological word boundary to a morpheme boundary when it is followed by  $\begin{bmatrix} +G \\ +P \end{bmatrix}$ .

The following readjustment rules can be formulated to the effect of the above three statements (RA in the following rules stand for readjustment rules):

RA 1

+ → null

except when it is referred to by  
            
a traffic rule.

RA 2

$$++ \rightarrow \text{null} / \text{---} [+G]$$

RA 3

$$++ \rightarrow + / - \begin{bmatrix} +G \\ +P \end{bmatrix}$$

## 1.10 Redundancy Rules

The maximally nonredundant phonological matrices of the syntactic surface structure, after being readjusted by the readjustment rules, are submitted to the redundancy rules.

Redundancy rules perform a double function. They not only specify the redundant features by segment structure rules (see, p. 283) and sequence structure rules (see, p. 283), but also specify phonetic realizations for the majority of the underlying phonological matrices (see, 4.2).

In C and H's model the redundancy rules are conditioned to apply only within morpheme boundaries. Brown (1969; 1971) made a proposal to allow the redundancy rules to apply up to the domain of a phonological word. But in a phonological analysis of Tamil, the restriction on redundancy rules regarding boundary markers is not necessary. Consider for example the following underlying sequence:

(21) /++ a]uk + in + a ++ ki]aNku ++/ →

[a]uxina xi]angu]

'the Yam that is rotten'

In the first phonological word, the velar obstruent will be specified as a voiceless continuant by a redundancy rule (R 24). The initial velar obstruent in the second phonological word also becomes a voiceless continuant in this environment (i.e. preceded and followed by a nonconsonant). If the redundancy rules are conditioned to apply only within a phonological word, then we may need a phonological rule to specify the phonetic features of the initial velar obstruent of the second word. Moreover, the elements that enter the P-rules have to be fully specified by the redundancy

rules. Suppose an R-rule specifies the velar obstruent in second word as [-cnt] and [-vce], then the P-rule has to reverse these features into [+cnt] and [-vce]. But if the redundancy rules are allowed to apply even across word boundaries, then the same rule which specifies the velar obstruent in the <sup>first</sup> word will also specify the same in the second word. A similar phonological process takes place in the other obstruents too. In the majority of the phonological matrices, the phonological processes that take place within word boundary also take place <sup>with</sup> across word boundary. Therefore, if redundancy rules are conditioned to apply even across word boundaries, then much saving can be effected in the phonological rules.

The main function of the redundancy rules is to perform simple additioning transformations only. That is, they add primary and secondary features (see, pp. 101 for a discussion on these features) and they also add predictable segments into the underlying phonological matrices (see, for example, R 7 - R 13 in 4.5). Since the redundancy rules specify phonetic realizations to the majority of the underlying matrices, they are regarded as realization rules. Further details about the redundancy rules are given in Chapter 4.

The output of the redundancy rules has been regarded as the systematic phonemic level in C and H's model. But no such level is recognized in the present model. In the case



of the majority of the Tamil underlying phonological matrices, the output of the redundancy rules shall be the systematic phonetic representations. Those matrices which are marked by the traffic rules for entry to the P-rules will be fully specified by the redundancy rules and they will be submitted to the P-rules.

### 1.11 The Phonological Rules

In comparison with C and H's model, the present model consists of a very few phonological rules. The reason for having a small number of rules (i.e. P-rules) is the synchronic validity of the model. Let us examine this claim. It has been the practice in earlier phonological analyses of Tamil to posit a dental obstruent as the underlying form for one of the past tense markers (see, Thananjayarajasingham (1962), Shanmugam Pillai (1966) and Bright and Lindenfeld (1968)). This dental obstruent is said to be palatalized after /i/ or /y/. This phonological process is known as palatalization and it reflects a diachronic change especially in Tamil and Malayalam and generally in many of the Dravidian languages. When literary Tamil is employed for writing or for any formal speeches, the following sequences are found:

- |      |     |            |   |           |
|------|-----|------------|---|-----------|
| (22) | (a) | a[i + tt   | → | [aɕitt]   |
|      | (b) | teey + tt  | → | [te:ytt]  |
|      | (c) | kalay + Nt | → | [kalɔynd] |

(d) eri + Nt → [erind]

These sequences never occur in the colloquial speech. No dental obstruents are found after /i/ or /y/ in such sequences:

- (23) (a) [aɟicc]  
 (b) [te:cc]  
 (c) [kalapɟ]  
 (d) [eripɟ]

This shows that the palatal consonants in (23) as against (22), are almost universally characteristic of the pronunciation of the mass of the Tamil people, as distinguished from the *literti*. Malayalam, one of the Dravidian languages was the first to adopt complete palatalization as the rule of the language (Caldwell, 1856: 118; Chandra Sekhar, 1953: 24-5). But in literary and inscriptional Tamil, a partial palatalization started as early as the seventh century A.D. Nannūl, a grammatical treatise belonging to the eleventh century, has a rule saying that the dental n changes to palatal ɲ when it occurs before a diphthong ai or a consonant y (sutra, 124). In the Irula dialect of Tamil, the palatalization rule seems to have no effect. Diffloth (1969: 561-2) who analysed this dialect makes some valuable observations as follows: "This is remarkable only in view of the fact that all known colloquial dialects of Tamil have undergone palatalization of the dentals after i and y giving forms like:

paḍiccē, s̄anji, odenji. This palatalization is also found in Ceylon and even in Jaffna Tamil".

The preceding discussion shows that the palatalization is a historical change in the Daravidian languages, and the palatalized consonants have become part of Ceylon spoken Tamil. Thus, in instances where these palatal consonants occur in the dialect, there is no point in positing an underlying dental obstruent. The observed data show that palatal consonants occur as past tense markers after /i/ ending and /y/ ending stems. There is no harm in describing this phenomenon as it is (see, 2.5 for further discussion on this point). Thus in the present description, the past tense markers (except -/in/-) are simply listed in lexicon 2 as [+obs], [+nas][+obs], and [+obs][+obs]. The redundancy rules (R 17) will map the features of the palatal consonants on to [+nas][+obs] and [+obs][+obs] respectively when they occur after /i/ or /y/. There is no need for a P-rule in the form of a palatalization rule in the present description.

Certain other cases too, where C and H's model would have proposed P-rules, have been taken care of by R-rules alone in the present description (for example, epenthetic vowel insertion, C and H: 375 propose a phonological rule as  $\emptyset \rightarrow B / X - Y$ ; but in our description, R-rule performs this function). One may legitimately ask whether the power of the P-rules in the present model is considerably decreased.

The answer is, as Sampson (1970: 616-7) suggested, that over the last few years, many different proposals have been made as to specific respects in which the power of the P-rules should be increased or decreased, and Chomsky (1967: 126) himself suggests that there is a long way left to go. The present analysis shows that a majority of redundancy rules are preferred to account for the data which would have been accounted for by many P-rules in C and H's model.

The main functional difference between the phonological rules and the redundancy rules is that the former are a set of mutation rules, while the latter are regarded as realization rules. Further details of the phonological rules are presented in Chapter 5.

## 1.12 Features

### 1.12.1 Chosen Features and Natural Classes

The features used in classifying the underlying elements of the dialect under investigation are listed below together with their abbreviations:

consonantal	(cns)
approximant	(app)
obstruent	(obs)
nasal	(nas)
lateral	(lat)
retroflex	(ret)
front	(fnt)

front	(fnt)
medial	(med)
back	(bck)
low	(low)

The natural classes functioning in the phonology of Tamil are distinguished by the general features consonantal, approximant, obstruent, nasal and lateral. These five features help us to set apart the six natural classes depicted in the diagram presented in the next page (Diagram 1.1). Most of the features that are used to classify the underlying elements, deviate from that of C and H. Consider for example, the use of the features vocalic and consonantal in their work. According to them these two features give a four-way classification of segments as follows:

(24)	(a)	<table><tr><td>+vocalic</td></tr><tr><td>-consonantal</td></tr></table>	+vocalic	-consonantal	= vowel
+vocalic					
-consonantal					
	(b)	<table><tr><td>-vocalic</td></tr><tr><td>+consonantal</td></tr></table>	-vocalic	+consonantal	= true consonant
-vocalic					
+consonantal					
	(c)	<table><tr><td>+vocalic</td></tr><tr><td>+consonantal</td></tr></table>	+vocalic	+consonantal	= liquid
+vocalic					
+consonantal					
	(d)	<table><tr><td>-vocalic</td></tr><tr><td>-consonantal</td></tr></table>	-vocalic	-consonantal	= glide
-vocalic					
-consonantal					

These two features may be essential for languages in which a syllabic vowel may turn out to be a glide or a liquid consonant may become syllabic. To account for these changes it will be much easier to classify the underlying elements into vowels, consonants, liquids and glides. But it has

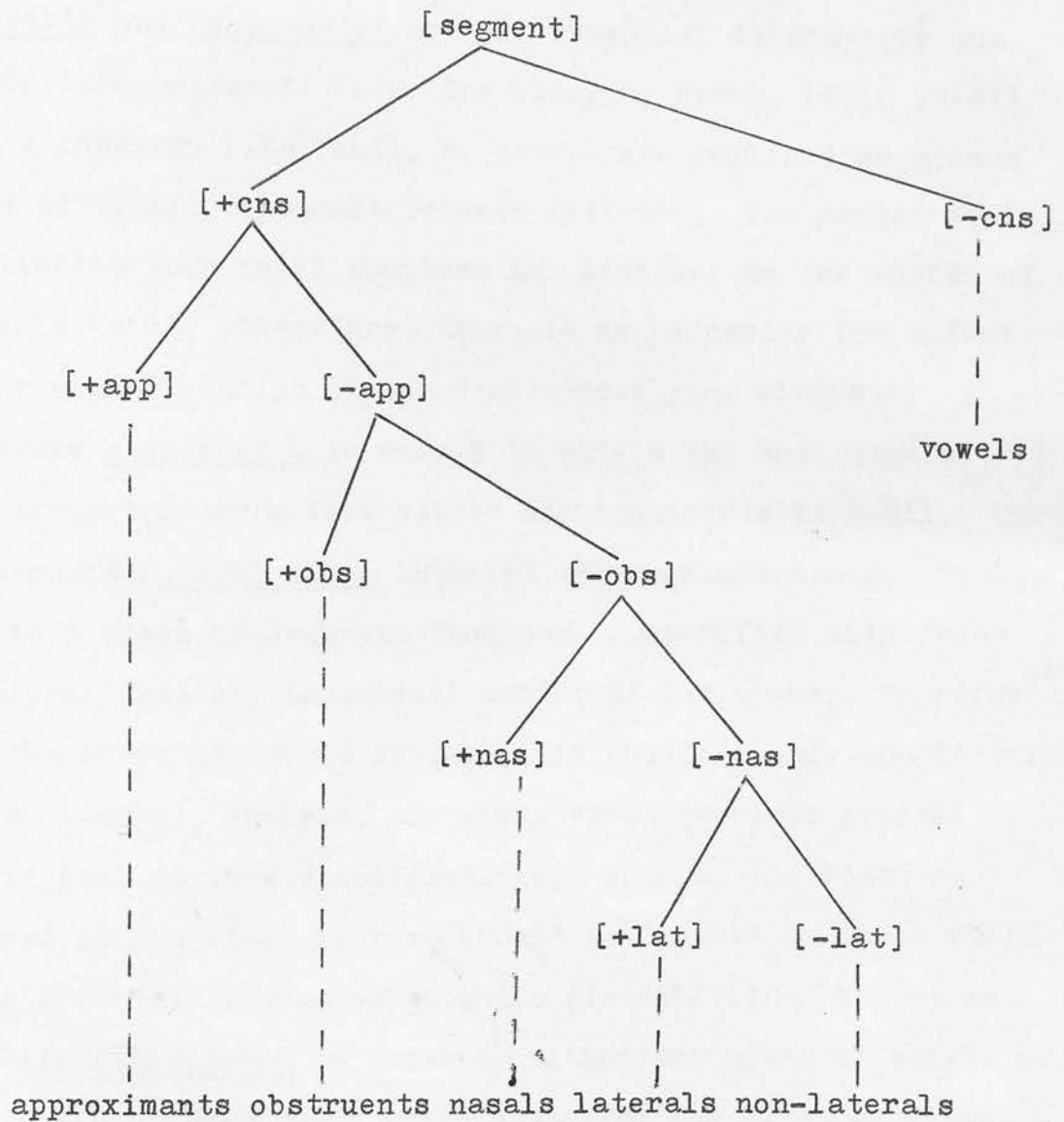


Diagram 1.1



been suggested that even for such languages the two features vocalic and consonantal are not essential to classify the underlying elements (see, for example, Brown, 1971: 79-81). In a language like Tamil, no vowels are realised as glides and no liquid consonant becomes syllabic. The number of syllables in a Tamil morpheme is identical to the number of vowels in it. Therefore, there is no necessity for a four-way classification of the Tamil underlying elements. A feature consonantal is enough to obtain the most general set of natural classes like vowels and consonants in Tamil. The notion of natural class involves two considerations. First, it is a class of segments that can be specified with fewer features than any individual member of the class. To refer to the class of vowels in Tamil, it requires only one feature (i.e. [-cns]), whereas, any given vowel requires several additional feature specifications. Second, the features shared by the class members should be limited to those which have a certain degree of phonetic plausibility. We use one feature consonantal to refer to either the class of vowels or the class of consonants which satisfies the first consideration. On the second consideration, /y/ and /v/ pose a problem. C and H (p. 302) describe the feature consonantal-nonconsonantal as follows: "Consonantal sounds are produced with a radical obstruction in the midsagittal region of the vocal tract; nonconsonantal sounds are produced without such

an obstruction". The Tamil sounds /y/ and /v/ are produced without such an obstruction, therefore, the question as to whether they can be included in the natural class consonantal has to be justified. Notice that the class containing the consonants /k/ <sup>etc.</sup> and the elements /y/ and /v/ is a more natural class in our terms than the class containing /y/ and /v/ alone. The last two elements play an important role in the phonology as hiatus-fillers. It will be specified by a positive condition (PC 4) that no two different vowels occur side by side within a morpheme. If two identical vowels occur within a morpheme <sup>boundary</sup>, then those two vowels according to PC 5 (PC stands for positive condition) will realize as a single unit with the feature long. But if two identical or nonidentical vowels occur across morpheme or phonological word boundaries, then, either, one of the vowels is deleted or a hiatus-filler like /y/ or /v/ is inserted between those two vowels. This function of /y/ and /v/ strongly suggest that these two elements cannot be included within the class of nonconsonantal, even though both the vowels and /y/ and /v/ share a common phonetic factor, namely, the absence of an obstruction in the midsagittal region. Thus, on language-specific reason, the sounds /y/ and /v/ are included in the class of consonantal.

Now let us examine the motivation for setting up approximant as one of the natural classes. First of all, a

brief comment about the term approximant is necessary. Certain sounds like /y/ and /v/ are often described as semi-vowels or frictionless continuants which according to Abercrombie (1967: 50) are rather unsatisfactory names. Ladefoged (1964: 25) suggested the term approximant to describe these sounds. We have adopted this term as a feature to distinguish /y/ and /v/ from other consonantal elements. The decision to set up approximant as one of the natural classes in Tamil is motivated by the simplicity criterion or economy criterion (we will return to this point below). If for example, the feature approximant is not included in the phonology, then the underlying elements /r/, /y/ and /v/ will have the following feature-bundles whenever they are referred to in a rule:

(25)        /r/        =

+cns
-obs
-nas
-lat
-ret
-fnt
+med
-bck

             /y/        =

+cns
-obs
-nas
-lat
-ret
-fnt
+med
+bck

$$/v/ = \begin{bmatrix} +cns \\ -obs \\ -nas \\ -lat \\ -ret \\ +fnt \\ -med \\ -bck \end{bmatrix}$$

But if a feature called approximant is included, then those three can be represented as follows

$$(26) \quad /r/ = \begin{bmatrix} +cns \\ -app \\ -obs \\ -nas \\ -lat \\ -ret \end{bmatrix}$$

$$/y/ = \begin{bmatrix} +cns \\ +app \\ -fnt \\ +med \\ +bck \end{bmatrix}$$

$$/v/ = \begin{bmatrix} +cns \\ +app \\ +fnt \\ -med \\ -bck \end{bmatrix}$$

Further, if the feature approximant is not included, then the nonlateral class will refer to the following elements: /R, r, y, v/. Now the first two only will belong to the nonlateral class and the last two can be referred to as approximants and they will be specified as  $\begin{bmatrix} +cns \\ +app \end{bmatrix}$ . Consider for example, a rule that introduces a geminated consonant:

$$(27) \quad \text{If,} \quad ++ ([+cns]) \begin{bmatrix} -cns \\ -lmg \end{bmatrix} \left\{ \begin{matrix} +mns \\ n \\ \eta \\ l \\ l \\ y \\ v \end{matrix} \right\} [ \quad ] [+cns]$$

Then,

$$\left\{ \begin{matrix} m \\ n \\ \eta \\ l \\ l \\ y \\ v \end{matrix} \right\}$$

If a feature approximant is not included, then the elements /y/ and /v/ cannot be grouped together as /m, n,  $\eta$ / on one hand and /l,  $\lambda$ / on the other hand are grouped. If the feature approximant is available, then those elements in (27) can be presented in the following simpler form:

$$(28) \quad \begin{bmatrix} +nas \\ a_{ret} \\ p_{fnt} \\ y_{med} \\ s_{bck} \end{bmatrix} = /m, n, \eta/$$

$$\begin{bmatrix} +lat \\ a_{ret} \end{bmatrix} = /l, \lambda/$$

$$\begin{bmatrix} +cns \\ +app \\ a_{fnt} \\ p_{med} \\ r_{bck} \end{bmatrix} = /y, v/$$

An examination of Table 1.2 shows that the two elements /y/ and /v/ can be uniquely identified in the language in question by specifying the two features  $\begin{bmatrix} +cns \\ +app \end{bmatrix}$ . C and H (p.334) states the following definition as an evaluation

criterion: "The 'value' of a sequence of rules is the reciprocal of the number of symbols in its minimal representation". In view of this evaluation criterion the schema that is presented in (28) is more natural and simpler than (27). The introduction of the feature approximant has also contributed its share in order to achieve this simplicity and naturalness.

Let us return now to discuss the notion of simplicity or economy criterion. Chomsky (1964: 71) makes the following observation regarding this point: "A natural evaluation measure ('simplicity' measure) for the phonological component is the number of feature specifications it contains. In particular, then, the grammar is more highly valued (and more general) if rules are stated in terms of archiphonemes (and furthermore, 'generalized archiphonemes' such as C, V, etc.) rather than segments". In terms of the first part of the above definition, an examination of Table 1.2 shows that all the underlying elements in the system of Tamil phonology can be uniquely identified by the single feature consonantal. The vowels of the system are immediately recognizable by a single feature [-cns]. Other natural classes: obstruents, nasals, laterals, and nonlaterals functioning within consonants can be identified with the features [+obs], [+nas], [+lat], and [-lat] respectively. The only class that needs two feature specifications (e.g.  $\begin{bmatrix} +cns \\ +app \end{bmatrix}$ ) is the approximant class.



The setting up<sup>of</sup> the natural classes that are functioning within the Tamil phonological system with a few features and thus enabling the rules of the phonology to contain minimum feature specifications (compare 29 and 30) can be regarded as a contribution to the simplicity measure of the phonological component. Regarding the second part of his definition, consider, now the following instance in Tamil phonology:: the nonconsonant /u/ is deleted before any vowel. This can be presented as:

$$(29) \quad u \rightarrow \emptyset / \left. \begin{array}{c} a \\ a: \\ i \\ i: \\ u \\ u: \\ e \\ e: \\ o \\ o: \end{array} \right\}$$

But an examination of Table 1.2 and the positive condition that specifies length for the nonconsonants (PC 5) shows that the ten segments in the context of (29) can be uniquely identified in Tamil by specifying the only feature [-cns]; and in view of Chomsky's definition (i.e. the grammar is more highly valued if rules are stated in terms of archi-phonemes) and also in view of C and H's evaluation criterion (i.e. the 'value' of a sequence of rules is the reciprocal of the number of symbols in its minimal representation), it is this most abbreviated schema that determines the value

of the rules summarized by (29). In short, the theory requires that these rules be formally represented by the schema (30):

$$(30) \quad \begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \rightarrow \emptyset \quad / \quad \text{---} [-cns]$$

Thus the required simplicity is thereby achieved, as a comparison of (29) and (30) readily shows.

The concept of simplicity cannot be considered apart from the notion of generality. The role of the simplicity metric is to devise a method of formulating rules in such a way that it will always be the most economical one and it will force the analysis in the direction of greater generality. Several examples can be found in this work to justify this claim. Numerous conventions for reducing several rules to a single one and deleting irrelevant information from rules are all part of the simplicity metric. The role of the simplicity metric, in short, insures that the phonology reflects the most highly valued generalizations about Tamil.

Let us now return to the discussion of the features that are chosen to characterise the underlying elements. Apart from the features that set apart the natural classes that are functioning within Tamil phonology, the features retroflex, front, medial, back, and low are chosen to distinguish the underlying elements. Among them the feature

retroflex is useful in the phonological descriptions of most of the Indian languages. Ramanujan and Masica (1969: 570-1) have used retroflexion as one of the features that provide areal groupings for a phonological typology of the Indian linguistic area. The retroflex consonant is said to be an example of a displaced articulation. Abercrombie (1967: 51) says: "Another example for a displaced articulation is when the point of the tongue is raised towards the hard palate, which means it must be curled back as well. The adjective retroflex is used for this class of consonants, and although it does not directly identify the two articulators concerned, it is nevertheless descriptive of what takes place. Segments so made are common in the languages of India and in many other parts of the world". The feature retroflex is thus chosen to specify the following alphabetic representations: /ɭ, ɺ, ɽ, R/. This feature enables us to simplify the feature specifications of certain elements. Consider /l/, /ɭ/, /r/ and /R/. These four elements can be specified with just two features, namely, lateral and retroflex:

$$(31) \quad \begin{bmatrix} +\text{lat} \\ +\text{ret} \end{bmatrix} = /ɭ/$$

$$\begin{bmatrix} +\text{lat} \\ -\text{ret} \end{bmatrix} = /l/$$

$$\begin{bmatrix} -\text{lat} \\ +\text{ret} \end{bmatrix} = /R/$$

$$\begin{bmatrix} -\text{lat} \\ -\text{ret} \end{bmatrix} = /r/$$

Although the features front, medial and back are chosen to specify both consonants and nonconsonants, their phonetic description of the consonants differs from that of the nonconsonants. For nonconsonants, these features are chosen in terms of the active articulator only; but for the consonants in terms of both active and passive articulators (see, Abercrombie, 1967: 43 for an explanation for these terms). In the case of the nonconsonants, the movement of the active articulator (i.e. tongue) is taken into consideration; whereas for the consonants, the contact between the active articulators (i.e. the tongue and the lower lip) and the passive articulators (i.e. the upper lip, the roof of the mouth and the velum) is taken into consideration. Thus, for example, the nonconsonant /i/ will be specified as:

$$(32) \quad \begin{bmatrix} +\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix}$$

For the production of this sound, the tongue moves to the front position and it is high; hence the features [+fnt] and [-low]. But the consonant sound /y/ will be specified as:

$$(33) \quad \begin{bmatrix} -\text{fnt} \\ +\text{med} \\ +\text{bck} \end{bmatrix}$$

The two sides of the tongue make contact with the middle and back parts of the roof of the mouth (see, palatograms 26 and 27 in p. 401 of Chapter 6).

The feature low is used to specify only the underlying nonconsonants.

### 1.12.2 Characterisation of Underlying Elements

In this description of the phonological system of Ceylon spoken Tamil, twenty underlying elements are recognized (see, Table 1.2). The phonological component contains many rules that bring these underlying elements to their phonetic realizations. Included in the rules of the phonology, is a set of redundancy rules (R 14 - R118) which recapitulate to some extent the famous law known as "convertibility of surds and sonants" propounded by Caldwell for the stop consonants in Dravidian languages. Caldwell (1856: 102-4) in his comparative study of the Dravidian languages has shown distinct traces of the existence of this law in all the Dravidian dialects, but he concludes that it is found most systematically and in its most developed form in Tamil and Malayalam. The law as apparent in Tamil system of sounds according to Caldwell, is as follows: /p/, /t/, /t̪/, /k/ are always pronounced as tenues or surds at the beginning of words and whenever they are doubled. The same consonants are always pronounced as medials or sonants when single in the middle of words. A sonant cannot begin a word, neither is a surd admissible in the middle, except when doubled. A similar

rule applies to the pronunciation of /c/. When single, it is pronounced as a soft weak sibilant ( as [s] ). This pronunciation is unchanged in the middle of words, and in all cases in which that consonant is single; but when it is doubled, it is pronounced as a surd. This is how Caldwell has described his law of "The convertibility of surds and sonants" in Tamil. Tamil orthography has only five symbols for the stop consonants (i.e.  $\text{ப}$  /p/,  $\text{த}$  /t/,  $\text{ல}$  /l/,  $\text{க}$  /k/,  $\text{ச}$  /c/ ). Whether they are pronounced as voiceless continuants or noncontinuants; as voiced continuants or noncontinuants, only those five symbols are employed in writing. This orthographic tradition of Tamil confirms Caldwell's law (see, Firth, 1934: ii-iii for a discussion of this point). Following this tradition and Caldwell's law, we have set up /p/, /t/, /l/, /k/ and /c/ as the underlying obstruent elements which are used to spell the entries in the lexicon. But these elements will later emerge as various phonetic segments (as surds and sonants in the words of Caldwell) when the redundancy rules R 14, R 15, R 16, R 17 and R 18 are applied. From the five underlying obstruents the redundancy rules will give fourteen phonetic obstruents (i.e. [p, b, β, t, d, t̪, d̪, k, g, x, c (t̪) , j (d̪), s] ).

A surface level phonetic alveolar voiceless obstruent is encountered in certain phonological words. This obstruent



is derived from the retroflex obstruent by a phonological rule (see, P 8 for further details).

Regarding the so-called double stop consonants in Tamil, there is a prolonged debate among scholars whether they are actually double or not. It was Firth (1934: iii-iv) who first questioned whether the Tamil double stop consonants are really double or long. He pointed out the inconsistency in the length of those consonants. Although his suspicion was aroused to say "that the double stop consonants, pp, tt, [t̪t̪], kk are not always double consonants in the Italian sense (cf. cappello, mattina, freddo) or like the two p's in up-platform run together", he has not given any definite conclusion, but simply points out that "further research is necessary".

Lisker (1958) has convincingly proved that there is inconsistency in the length of the so-called double occlusives. He summarizes his arguments as follows: "The voiceless stops of Tamil vary greatly in their durations of closure. Their range of variation, as determined from spectograms, coincides with ranges that accommodate both phonemically short voiceless stops and phonemically long voiceless stops in several other languages". Further, he pointed out the absence of single voiceless stops in medial position to contrast with the double stops, so that the

particular value of closure duration which separates the two types of stops can be determined. In this situation, he is unable to say anything definite about the length of the double stops, and concludes that "the contrasting sets which Tamil orthography renders by p, t, ṭ, k and pp, tt, tṭ, kk differ in closure duration, to be sure, but this may be considered a concomitant of the other phonetic dimensions which serve to separate the two sets: fricative vs. stop, flap vs. stop, and voiced-lenis vs. voiceless fortis".

Zvelebil (1960: 425) in his list of Tamil phonemes, recognizes the double stop consonants as 'long voiceless' phonemes. He says that "there can be no doubt that the difference between short stops (and not only stops but most of the other consonants) and long stops ( and most of the other so-called double consonants) is distinctive.... The substance of the difference should not be found in the doubling of consonants or in the opposition lenis vs. fortis or voiced vs. voiceless, but in the length of the consonant... The difference is mainly in the duration of the occlusion and very probably in the way of articulation". According to these observations, the Tamil double stops are not really double consonants, but are long consonants.

Following Ramasubramanian (1971), the present writer differs from the above views on the so-called double consonants. Ramasubramanian points out that the so-called



syllables, whereas the duration of a long consonant is confined to a single syllable". Further discussion of the problem of the double consonants in Tamil is taken up in 6.2.1.

Three underlying nasal consonants are recognized in this description. These are: /m/, /n/ and /ŋ/. Six different symbols are used however to characterise the phonetic realisation of these three underlying nasal consonants. The six phonetic nasals are: [m, n, ɲ, ŋ, ɳ, ɳ̌]. In the dialect under investigation, a nasal before an obstruent is always homorganic with this obstruent. This enables us to specify the nasals before obstruents only with the features [+cns] and [+nas]. The redundancy rule R 15 will map the features of the corresponding obstruents to these nasal elements. For lexical entries, the nasal before obstruent will be represented by the symbol /N/. Thus the sequences /Np/, /Nt/, /Nɳ̌/, /Nc/, and /Nk/ will be realized as [mb], [nd], [ŋɳ̌], [ɳ̌j] and [ŋg] respectively. As far as the verbal forms of the Ceylon colloquial Tamil are concerned the occurrence of the nasal plus obstruent cluster is always homorganic. If nominal forms are taken into consideration, heterogenic nasal plus obstruent clusters have to be attested. Consider for example the following nominal forms where sequences such as: [nb], [ng], [ŋg] are found: [onbu] 'love', [mi:ngaRi] 'fish curry', [pa:ŋga:Ran] 'bread man'.

In the present description, underlying consonants and nonconsonants are characterised by different sets of primary features. The consonants are characterised by the following primary features: obstruent, approximant, nasal, lateral retroflex, front, medial and back. Certain primary features of the consonants, namely, continuant and voice are introduced by the R-rules (see, R 20 - R 29). The nonconsonants are characterised by the following primary features: front, medial, and low. The primary feature long for the nonconsonants will be specified by a positive condition (PC 5).

Characterisation of the underlying consonants and nonconsonants with different set of primary features allows the process of phonetic similitude to be expressed in a very natural way. For example, when a nonconsonant follows a [+nas] consonant, the primary nasal feature of the consonant is shared by the nonconsonant (see, R 30). Similarly, if a nonconsonant precedes a [+ret] consonant, then the primary retroflex feature is shared by the nonconsonant (see, R 32).

In order to characterise the low-level phonetic quality of the vowels, the features round, raised, advanced, and retracted are introduced by some redundancy rules. The symbol that represents each low-level phonetic quality of a nonconsonant is employed in exemplification only in that part of the rule concerned. In other places, the symbol used for the underlying element is employed.

### 1.12.3 Underlying Elements are Presented in a Classificatory Matrix

The underlying elements and the primary features that are used to characterise them in the underlying level are often presented in a classificatory matrix. Such a matrix is provided in Table 1.2.

	p	t	l	c	k	m	n	ŋ	N	l	ʃ	r	R	y	v	i	e	u	o	a
cns	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-
app	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+				
obs	+	+	+	+	+	-	-	-	-	-	-	-	-	-						
nas						+	+	+	+	-	-	-	-							
lat											+	+	-	-						
ret	-	-	+	-	-	-	-	+			-	+	-	+						
fnt	+	+		-	-	+	-				-	-		-	+	+	+	-	-	-
med	-	+		+	-	-	+				+	+		+	-	-	-	-	-	+
bck	-	-		+	+	-	-				-	-		+	-					
low																-	+	-	+	+

Table 1.2

### 1.13 Phonetic Realization

The output of the R-rules and P-rules is the phonetic realization of the underlying phonological matrices. A certain number of low-level phonetic realizations are reached in



certain cases. But an analysis in terms of introducing integers in the low-level as suggested by C and H is not attempted in this work. Phonetic realizations of the phonological elements are discussed in Chapter 6.

1.14 Summary of Main Differences between C and H and the Model proposed in this Chapter (to be referred to below as AS)

- (a) C and H recognizes a level called fully specified phonological representation; whereas AS does not.
- (b) The redundancy rules in C and H are conditioned to apply only within morpheme boundaries; whereas they are allowed to apply across morpheme and word boundaries in AS.
- (c) The PMIR, the positive conditions and the traffic rules which are found in AS are not found in C and H.
- (d) Unlike C and H, AS has two lexicons.
- (e) Each underlying phonological matrix in C and H has to go through the P-rules to reach its phonetic representation; whereas in AS, a majority of the underlying matrices emerge into their phonetic representations after the application of the R-rules alone.
- (f) In C and H, the output of the P-rules is the output of the phonological component; whereas in AS, the output of the redundancy rules which are regarded as realization rules, is considered to be the output of the phonological component.

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## CHAPTER TWO

## 2. VERB FORMS

2.1 Preliminary Remarks

The Tamil verb is highly inflected. As an example, a set of inflectional paradigms of the verb paṭi, 'study', is shown in Diagram 2.1 (but note that this paradigm is not a complete set; inflectional forms of the complex verb forms of paṭi are not given in this Diagram). The following comments are to be made about Diagram 2.1 before we begin the actual discussion of verb forms in Ceylon colloquial Tamil:

(a) The labels in Diagram 2.1 have the following implications:

- |                                |   |                              |
|--------------------------------|---|------------------------------|
| [+neg, +fin, +ind]             | = | negative indicative          |
| e.g. /paṭi + an/               | → | [paṭiyan] 'I will not study' |
| [+neg, +fin, -ind]             | = | negative imperative          |
| e.g. /paṭi + aa + ta/          | → | [paṭiya:da] 'do not study'   |
| [+neg, -fin, +adv part, +cond] | = | negative conditional         |
| e.g. /paṭi + aa + iṭṭaal/      | → | [paṭiya:ṭṭa:]                |
|                                |   | 'if you don't study'         |
| [+neg, -fin, +adv part, -cond] | = | negative adverbial           |
|                                |   | participle                   |
| e.g. /paṭi + aa + mal/         | → | [paṭiya:mal]                 |
|                                |   | 'not having studied'         |

[+neg, -fin, -adv part]	= negative adjectival participle
e.g. /paʃi + ao + ta/	→ [paʃiya:da]
	'who has not studied'
[-neg, +fin, +ind, +pst]	= past indicative
e.g. /paʃi + [+obs][+obs] + an/	→ [paʃiccan]
	'I studied'
[-neg, +fin, +ind, -pst, +prt]	= present indicative
e.g. /paʃi + kkiR + an/	→ [paʃikkiRan]
	'I am studying'
[-neg, +fin, +ind, -pst, -prt]	= future indicative
e.g. /paʃi + pp + an/	→ [paʃippan]
	'I will study'
[-neg, +fin, -ind, +imp]	= imperative
e.g. /paʃi/	→ [paʃi] 'study'
[-neg, +fin, -ind, -imp]	= optative
e.g. /paʃi + alaam/	→ [paʃikkala:m] <sup>1</sup>
	'may study'
[-neg, -fin, +part, +adv part, +cond]	= positive conditional
e.g. /paʃi + [+obs][+obs] + aal/	→ [paʃicca:l]
	'if studied'

---

1. The realization of [kk] in this phonetic form

[-neg, -fin, +part, +adv part, -cond]	= adverbial participle
e.g. /paṭi + [+obs][+obs] + u/ → [paṭiccu]	'having studied'
[-neg, -fin, +part, -adv part, +pst]	= past adjective- ctival participle
e.g. /paṭi + [+obs][+obs] + a/ → [paṭicca]	'who studied'
[-neg, -fin, +part, -adv part, -pst]	= non-past adjectival participle
e.g. /paṭi + kkiR + a/ → [paṭikkiRa]	'who is studying'
[-neg, -fin, -part]	= infinitive
e.g. /paṭi + a/ → [paṭikka]	'to study'

As used in Diagram 2.1, these labels are purely illustrative, but it could no doubt be shown, that they have syntactic as well as morphological significance. For example, the forms of Diagram 2.1 seem to cross-classify syntactically such that the illustrative labels also function as syntactic features

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and in some other forms in this chapter, is due to the application of the redundancy rules R 9 and R 13.

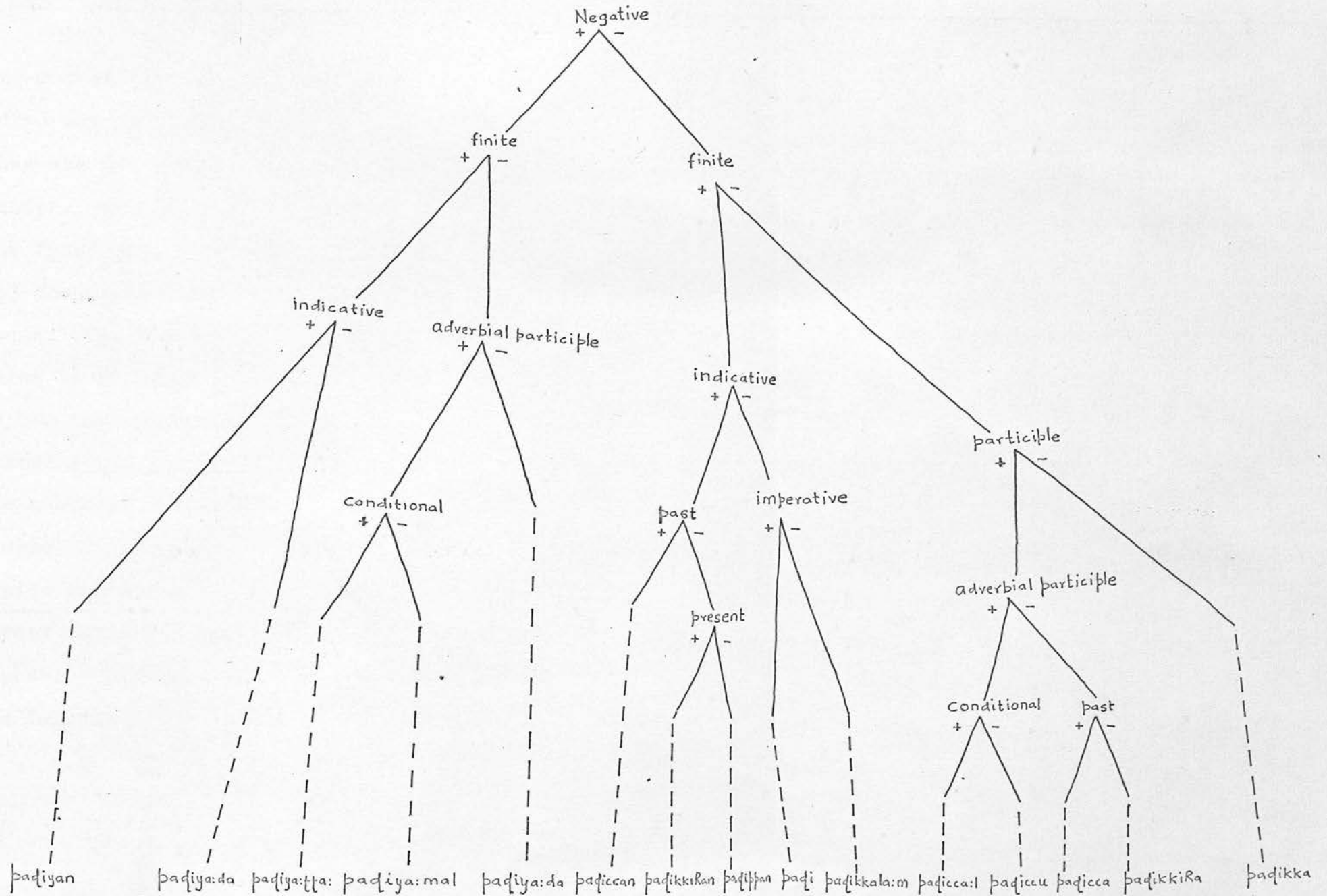


Diagram 2.1



available for independent reference in a number of syntactic rules. In this phonological study, we shall not attempt to justify these speculations.

(b) The label finite means that all such verbal forms are marked for person, number and gender. The non-finite forms are not inflected for person, number and gender. Thus, they are not restricted to a particular person, number or gender. The non-finite verbs may be divided into two classes: the first comprises those which occur as adjuncts of verbs and the second comprises those which occur as adjuncts of nouns. Tamil traditional grammarians use the term eccam to refer to all non-finite verbs. This term means 'that which is not completed'. One class of those non-finite forms is termed vinoy eccam 'that which is to be completed by a verb'. The other class is termed peyar eccam 'that which is to be completed by a noun'. Therefore, the terms adverbial participles and adjectival participles are employed for the former and the latter classes respectively with a view to emphasise the fact that these are non-finite forms having the function of adverbs and adjectives respectively:

e.g. (1) vandu padicca:n  
1 2

'having come he studied'  
1 2

(2) vanda na:y  
1 2

'the dog which came'  
2 1

The adverbiall participle vandu in the first example requires a verb to follow as its compliment and the adjectival participle vanda in the second example requires a noun to follow as its compliment.

Tamil verbal forms can be regarded as consisting of strings of morphemes. In almost all the inflected forms of a given verb, it is possible to locate in a fairly straightforward way each of the inflectional morphemes in a particular isolateable fragment of the phonetic form. For example, consider the following forms of the verb paṭi 'study':

- (3) paṭi + kkiR + an : positive, human, first person, singular, present indicative.
- (4) paṭi + cc + u : positive past adverbial participle.

In the present indicative form paṭikkiRam, paṭi can be called the stem (a definition of the term stem is given in the following page), kkiR, the present tense morpheme, an, the first person singular personal suffix. In the participial form paṭiccu, cc is the past tense morpheme, u is the adverbial participle suffix. This kind of segmentation and classification process is reasonably successful in majority of the Tamil verbal forms. A language which has this kind of segmentation is classified as an agglutinating type (in terms of a system of classification which originated in the nineteenth century). "An agglutinating language is

one which words are typically composed of a sequence of morphs with each morph representing one morpheme" (Lyons, 1968: 187-91). Tamil can be considered as one of those languages that belong primarily to this type.<sup>2</sup>

The main classifications that can be made of those members that join together to form Tamil verbal forms are: (1) stems, (2) suffixes, (3) tense markers. Among these stem is the most important class, because no verbal forms are formed without this. Further, certain verbal stems alone become imperatives (e.g. /aṭi/ → [aṭi] 'beat ', /ciri/ → [sirɪ] 'laugh ' ). A stem here is taken to be that part of a word which cannot be further segmented at the morphological level. The word has, of course, been used in a variety of different ways by other writers. Compare, for instance, the definitions of base and root in Lyons (1970: 318, 325): base: that part of a word (either a stem or a root) to which affixes may be attached. Root: that part of the form of a word which remains when all the derivational and inflectional affixes have been removed. Suffixes are needed to make the majority of the verbal forms (exceptions are the imperatives which are just referred to above).

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2. Caldwell (1856: 144-5) regards all Dravidian languages as belonging to the agglutinative type. But he observes that this is not a hard and fast line of distinction.

Most of the positive finite and non-finite verbal forms are formed with the tense markers.

With reference to tense markers and some other verbal suffixes, let us make a brief comment as to how the use is made of the concept of "phonological null" in this description. Consider the following forms: (a) /ooɿ + inam/ → [o:ɿnam] 'they are running'; (b) /ooɿ + utu/ → [o:ɿdu] 'it is running'; (c) /ooɿ + i/ → [o:ɿi] 'having run'. Among these, (a) is a positive, human, third person, epicene plural, present tense, finite verb. Although this form denotes the sense of present time, there is no morphological unit that is responsible for this. At the syntactic surface structure, a form of this kind will have the syntactic features [-past, +present] (i.e. present tense). But the rules (i.e. PMIR, see, 1.6) which insert the phonological matrices of the grammatical formatives will not insert any matrix that is equivalent to the syntactic feature matrix [-past, +present] for a form like (a). If such a situation arises, then we would prefer to say that the present tense marker in (a) is phonologically null. In (b) and (c) the present tense and past tense markers are phonologically null respectively.

## 2.2 Classification of Verbal Stems

In discussions of the dictionary entries for Tamil verbs, it is often stated that the singular imperative Tamil verb is the same as the root or stem.<sup>3</sup> If we adopt this view, then it will obscure an important distinction among Tamil verbal stems. There are a number of verbal stems in Tamil, which do not denote the imperative mood. Consider the following:

(5)	/puri/-	'understand'
	/ini/-	'be sweet'
	/uti/-	'dawn'
	/vacy/-	'be successful'
	/viacy/-	'feel thirsty'

Among the verbs of this type, there are some stems which denote a state of mind and some others which denote the action of nature ( /puri/- and /ini/ are examples for the former; /uti/- can be given as an example for the latter). Therefore, it is impossible to impose a command on these actions. Thus the statement, that the singular imperative

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3: See, for example, a statement by Suseendira Rajah (1970: 239): "Tamil verb bases are identical in their form with imperatives and they are used as command forms without adding any suffix".

Tamil verb is the same as the stem, is misleading. No such view is accepted here. Instead, an abstraction is made out from the different grammatical forms of a stem and it is entered in the lexicon as the underlying form.<sup>4</sup>

Having established the point that all Tamil verbal stems are not as same as the imperatives, let us now begin our discussion on the classification of verbal stems. Tolkāppiyar, the author of the earliest extant Tamil grammar, did not attempt to make a classification of the verbal stems. The author of Nannūl has classified the Tamil verbal stems into twenty three classes according to the last letter of each stem. Sutra 137 deals with this classification.<sup>5</sup>

4. See, Asher (1966: 27-8) for a statement on this point.

5. The following is the text of the sutra 137:

naḷavaa maḷicīi viḷukuu veevay  
 noppoo vavuri puḷ porun tiruntin  
 teeypaar celvav vaal keel dhken  
 Reytiya viru paan muunRaa miiravum  
 ceyye nneeval vinayppakaap patamee

'The different verbal roots which have 23 endings as in naḷa, vaa, maḷi, cii, viḷu, kuu, vee, vay, no, poo, vav, urip, uḷ, porun, tirum, tin, teey, paar, cel, vav, vaal, keel, dh are in the imperative pattern as in cey'.



It is only in this sutra that he talks about a division among the Tamil verbal stems and he had no occasion to elaborate it anywhere in his book. We are, in fact, justified in saying that the Tamil traditional grammarians did not attempt to make proper classification of verbal stems. European grammarians during the nineteenth and twentieth centuries have attempted to classify verbs into a number of groups. They have based their classifications on a number of different criteria. Pope<sup>6</sup> takes the following factors into consideration: (i) the type of tense morpheme (ii) the final vowel of the root and (iii) the intransitive-transitive alternance. Arden<sup>7</sup> groups the verbs into seven conjugational patterns according to the last letter of the root. Graul<sup>8</sup> had the same number of groupings, but the criteria on which his classification was made differs from those of Arden's. Lisker,<sup>9</sup> having pointed out that the Tamil

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6. Pope (1926)

7. Arden's grouping of verbs was revised by A.C. Clayton (1954). See Asher (1969) for a discussion of this point.

8. Though the Tamil Lexicon follows Graul's (1855) system of groupings, it differs from him by setting up of 13 conjugations. Asher (1969) considers that this (Graul's system) is "the one that has come nearest to finding universal acceptance".

verbal stems are usually divided into seven classes on the basis of the particular tense-marking suffixes found with them, made a proposal to eliminate such phonologically conditioned alternations as a criterion for stem classification. This proposal permitted him to reduce the seven classes of verbal stems into five. He went further than this and posited a new morphemic element (a dummy X represents this element) between the stems and the tense markers, which helped him to reduce the five classes into just three. It should be noted that Lisker and most of the previous European grammarians made the stem classification only for written Tamil.

Asher<sup>10</sup> was the first to classify the verbs in spoken Tamil. He was also the first to set up only two classes of verbs. The criterion on which he bases his classification

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9. Lisker (1951: 111-14)
  10. Asher (1966: 15-29); (1969: 249-79). The first paper deals with his proposal to set up <sup>a</sup> two classes system of Tamil verbal stems and the second paper, apart from other things, gives a history of the previous attempts made to classify Tamil verbs and an evaluation of those attempts.

is the consonant articulation in the segment of a verbal form that is the exponent of a grammatical tense. There are two possibilities of consonant articulation in the tense markers namely, fortis or lenis.<sup>11</sup> Thus his Class I verbal stems have fortis velar plosive articulation as a marker of present tense and fortis bilabial plosive articulation as a marker of future tense. Whereas in Class II this phonetic feature fortis is not found in the corresponding segment. He was able to draw this correlation only between the present and future tense markers. The criterion on which he made the classification of Tamil verbs, is highly motivated morphologically and phonologically in a grammar of Tamil. This attempt greatly reduced the number of irregular verbs in Tamil. He attempts in addition to link transitivity and intransitivity with the two classes of verbs. "The contrast at the phonetic level between 'tense' plosion and 'lax' consonant articulation sometimes has the function of differentiating between members of pairs of words which are semantically linked and which apart from this feature are structurally identical". He shows this contrast by some stems of identical phonematic and prosodic structure belonging to Class I and Class II as transitive and intransitive respectively.

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11. The terms fortis and lenis are purposely used here

We have made use of Asher's criteria in classifying the verbal stems of the Ceylon spoken Tamil. That is, the verbal stems are classified according to the tense morphemes that they take. A class of verbal stems take *-/iR/-* and *-/v/-* as the present and future tense morphemes respectively. Another class of verbal stems take *-/kkiR/-* and *-/pp/-* as the present and future tense markers respectively. The former is termed Class I and the latter as Class II. Past tense morphemes are not taken into consideration for the classification of verbal stems. Most of the verbal stems that belong to Class II are transitive. But it is difficult to draw a correlation between Class I and II verbal stems and intransitivity and transitivity respectively.<sup>12</sup> An inventory of Class I and Class II verbal stems is given below. But these lists do not contain all the verbal stems that are taken into consideration in this work. They are representative samples of the full list of verbal stems that appear in an appendix (pp. 454-95). The two lists are presented in four columns: the first gives

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instead of the terms tense and lax in order to avoid confusion between the phonological feature 'tense' and the morphological feature 'tense'.

Asher (1966: 27) himself noted this difficulty.

12. Asher (1966: 26) pointed out this difficulty in relation to the dialect which he investigated.

the verbal stem. The second and third give the phonological and phonetic representations of the present and future tense forms respectively. The final column provides a gloss:

## Class I

/en/-	/en + iR/- [en <i>ŋ</i> iR]	/en + v/- [en <i>ŋ</i> uv]	'count'
/uut/-	/uut + iR/- [u:diR]	/uut + v/- [u:duv]	'blow'
/aət/-	/aət + iR/- [a:q <i>ŋ</i> iR]	/aət + v/- [a:quv]	'dance'
/ooNk/-	/ooNk + iR/- [o:ŋgiR]	/ooNk + v/- [o:ŋguv]	'raise'
/uutt/-	/uutt + iR/- [u:ttiR]	/uutt + v/- [u:ttuv]	'pour'
/poo/-	/poo + iR/-	/poo + v/-	'go'
/tin/-	[pò:R] iR/-	[pò:v] v/-	'eat'
/tin/-	/tin + iR/- [tinniR]	/tin + v/- [tinnuv]	'eat'
/puuc/-	/puuc + iR/- [pu:siR]	/puuc + v/- [pu:suv]	'smear'
/kuni/-	/kuni + iR/- [kuniyiR]	/kuni + v/- [kuniiv]	'bend'
/mu <sub>l</sub> uc/-	/mu <sub>l</sub> uc + iR/- [mu <sub>l</sub> usiR]	/mu <sub>l</sub> uc + v/- [mu <sub>l</sub> usuv]	'blink'

/kaɭuv/-	/kaɭuv + iR/-	/kaɭuv + v/-	'wash'
	[kaɭuviR]	[kaɭuvuv]	
/kuNpiɭ/-	/kuNpiɭ + iR/-	/kuNpiɭ + v/-	'worship'
	[kumbiɖiR]	[kumbiɖuv]	
/caappiɭ/-	/caappiɭ + iR/-	/caappiɭ + v/-	'eat'
	[sa:ppiɖiR]	[sa:ppiɖuv]	
/uraNc/-	/uraNc + iR/-	/uraNc + v/-	'rub'
	[uraɲjiR]	[uraɲjuv]	
/viRaɔNɭ/-	/viRaɔNɭ + iR/-	/viRaɔNɭ + v/-	'scratch'
	[viRa:ɳɖiR]	[viRa:ɳɖuv]	

## Class II

/tii/-	/tii + kkiR/-	/tii + pp/-	'burn'
	[ti:kkiR]	[ti:pp]	
/nil/-	/nil + kkiR/-	/nil + pp/-	'stand'
	[nikkiR]	[nipp]	
/vay/-	/vay + kkiR/-	/vay + pp/-	'keep'
	[vaykkiR]	[vaypp]	
/paar/-	/paar + kkiR/-	/paar + pp/-	'see'
	[pa:kkiR]	[pa:pp]	
/ciri/-	/ciri + kkiR/-	/ciri + pp/-	'laugh'
	[sirikkiR]	[siripp]	
/kuɭu/-	/kuɭu + kkiR/-	/kuɭu + pp/-	'give'
	[kuɖukkiR]	[kuɖupp]	



/cuma/-	/cuma + kkiR/-	/cuma +ppp/-	'carry'
	[sumakkiR]	[sumapp]	
/vaaci/-	/vaaci + kkiR/-	/vaaci + pp/-	'read'
	[va:sikkiR]	[va:sipp]	
/cooti/-	/cooti + kkiR/-	/cooti + pp/-	'examine'
	[so:dikkiR]	[so:dipp]	
/caNti/-	/caNti + kkiR/-	/caNti + pp/-	'meet'
	[sandikkiR]	[sandipp]	
/aṭi/-	/aṭi + kkiR/-	/aṭi + pp/-	'beat'
	[aḍikkiR]	[aḍipp]	
/katay/-	/katay + kkiR/-	/katay + pp/-	'talk'
	[kḍaykkiR]	[kḍaypp]	

There are many stems appearing in Class I which will take Class II tense morphemes when they become causative stems. Consider for example, the following sentences:

- (6) so:Ru nalla: aviyudu  
           1      2      3

'rice is cooking well'  
           1      3      3      2

- (7) kaḍuda:si neruppila eriyudu  
           1      2      3

'paper is burning on the fire'  
           1      3      3      2      2      2

The verbal stems /avi/- and /eri/- in (6) and (7) respectively belong to Class I. But when they are employed in causative constructions as in:

(8) avan so:tte nalla: avikkiRa:n  
       1      2      3      4

'he is cooking the rice well'  
       1      4      4      2      2      3

(9) na:n koquda:siye neruppila erikkiRa:n  
       1      2                  3                  4

'I am burning the paper on fire'  
       1      4      4          2      2      3      3

they take the Class II present and future tense morphemes. Stems of this kind are entered in the lexicon only once as belonging to Class I and they will be transformed to Class II whenever necessary by a causative transformational rule. The implication of this statement will become clear in the section that deals with transitivization (see, 2.6.2(a) ).

### 2.3 Negative Forms

Negative verbal forms do not take any tense markers. This seems to be a common feature of all the Dravidian languages. Caldwell (1856: 368) remarks that "In general, the Dravidian negative verb has but one tense, which is an aorist, or is indeterminate time - e.g. pōgēn, Tam. (pōvanu, Tel., pōgenu, Can. ), I go not, means either I did not go, I do not go, I will not go. The time is generally determined by the context". But in the dialect under investigation, although the negative forms do not take any tense signs, they, in general, express the non-past time. consider for example, the following forms:

- (10) /var + an/ → [varan] 'I come not'
- (11) /paṭi + aan/ → [paṭiya:n] 'he studies  
not'
- (12) /viḷu + aaNkaḷ/ → [viḷa:ŋgaḷ] 'they (mas)  
fall not'

These sentences will never mean 'I did not come' (10) or 'he did not study' (11) or 'they (mas) did not fall' (12). But they can only mean either.

- (10) 'I do not come'  
(11) 'he does not study'  
(12) 'they (mas) do not fall'

or,

- (10) 'I will not come'  
(11) 'he will not study'  
(12) - 'they (mas) will not fall'

Therefore, it is not possible to make a general statement that Tamil negatives denote all three tenses according to the context.<sup>13</sup>

13. Velupillai (1966: 217-8) points out that although the negatives are referred to as common to all three tenses due to the absence of tense markers in them, they often seem to belong to the future tense.

The majority of the negative finite verbal forms in the dialect under investigation, are formed by the addition of the person - number - gender ( henceforth, PNG) markers straight to the verbal stems.

- (13) (a) /var + an/ → [varan] 'I come not'  
 (b) /vilu + an/ → [vilan] 'I fall not'  
 (c) /ool + aal/ → [o:qɑ:l] 'she runs not'

These forms are differentiated from their positive counterparts by the presence of the tense markers in the latter:

- (14) (a) /var + iR + an/ → [varran] 'I am coming'  
 (b) /vilu + iR + an/ → [viliRan] 'I am falling'  
 (c) /ool + iR + aal/ → [o:qɑ:liRɑ:l] 'she is running'

Traditional grammarians regard -/aa/- as the negative suffix and they would posit this suffix in the underlying structure of the negative verbal forms in (13) which is always realized as phonetic null. There is no motivation to include such an unprofitable grammatical process in the grammar of the Ceylon spoken Tamil. Caldwell (1856: 368-9) thinks that these forms (i.e. (13) ) are capable of expressing negatives without the suffix -/aa/-. The following explanation will justify his suggestion: "The absence of signs of tense appears to contribute to the expression of the idea of negation: it may at least be said that it precludes the signification of the affirmative. In consequence of the absence of tense signs the idea expressed by

the verb is abstracted from the realities of the past, the present and the future: it leaves the region of actual events, and passes into that of abstractions. Hence, this abstract form of the verb may be supposed to have become a negative mood, not by a positive, but by a negative process - by the absence of a predicate of time, not by the aid of a negative suffix". Therefore, the negative suffix in these forms is represented by phonological null (see, p. 111 for a brief comment on phonological null); thus there are no rules to this effect in 2.4.(Ib).

The negative verbal forms that are formed with the negative suffix -/aa/- can be divided under the following headings:

- I. human third person epicene plural finite forms.
- II. all non-human finite forms.
- III. all participial forms.
- IV. negative imperatives.

Let us now illustrate the formation of these verbs:

- I. human third person epicene plural finite forms

Most of the finite forms belonging to [+hum] division do not take the suffix -/aa/- for their negative forms. Only the third person epicene plural form takes this suffix:

- |      |                   |   |               |                 |
|------|-------------------|---|---------------|-----------------|
| (15) | /var + aa + inam/ | → | [vara:yinam]  |                 |
|      |                   |   |               | 'they come not' |
|      | /paq + aa + inam/ | → | [pa:qo:yinam] |                 |
|      |                   |   |               | 'they sing not' |

/paat + aa + inam/	→	[pa:da:yinam]	
			'they sing not'
/eɬu + aa + inam/	→	[eɬa:yinam]	
			'they take not'
/cuma + aa + inam/	→	[sumakka:yinam] <sup>14</sup>	
			'they carry not'
/tin + aa + inam/	→	[tinna:yinam]	
			'they eat not'

## II. non-human finite forms

The negative marker is affixed in between the verbal stem and the [-hum] PNG marker:

(16) /viɬ + aa + utu/	→	[viɬa:du]	
			'it leaves not'
/naɬa + aa + utu/	→	[naɬakka:du]	
			'it walks not'
/kuɬu + aa + utu/	→	[kuɬukka:du]	
			'it gives not'
/kuɬi + aa + utu/	→	[kuɬikka:du]	
			'it drinks not'

## III. participial forms

Both negative adverbial and adjectival participles are

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14. See, note 1 (pp. 105-6) on the phonetic realization of [kk].



formed by the affixation of the negative marker in between the stem and the participial suffixes. Notice that the negative adverbial and adjectival participial suffixes,  $-/mal/$  and  $-/ta/$  respectively, are different from the positive participial suffixes. The negative conditionals are formed by the addition of the negative marker in between the stem and the negative conditional suffix  $-/i\lambda\lambda aal/$ .

negative adverbial participles

(17)	$/eRi + aa + mal/$	$\rightarrow$	$[eRiya:mal]$ 'having not thrown'
	$/tooy + aa + mal/$	$\rightarrow$	$[to:ya:mal]$ 'having not washed'
	$/tiruNta\# aa + mal/$	$\rightarrow$	$[tirunda:mal]$ 'having not improved'
	$/ka\lambda a + aa + mal/$	$\rightarrow$	$[ka\lambda akka:mal]$ 'having not crossed'

negative adjectival participles

(18)	$/ku\lambda i + aa + ta/$	$\rightarrow$	$[ku\lambda ikka:da]$ 'who bathes not'
	$/u\lambda ay + aa + ta/$	$\rightarrow$	$[u\lambda aya:da]$ 'which breaks not'
	$/ve\lambda\lambda + aa + ta/$	$\rightarrow$	$[ve\lambda\lambda a:da]$ 'which or who cuts not'
	$/a\lambda u + aa + ta/$	$\rightarrow$	$[a\lambda a:da]$ 'who cries not'

## negative conditionals

- (19) /taɭ + aa + iɭɭaal/ → [taɭɭa:ɭɭa:]  
 'if pushed not'  
 /keeɭ + aa + iɭɭaal/ → [ke:ɭa:ɭɭa:]  
 'if hears not'  
 /uut + aa + iɭɭaal/ → [u:da:ɭɭa:]  
 'if blows not'  
 /tiruNp + aa + iɭɭaal/ → [tirumba:ɭɭa:]  
 'if turns not'

## IV. negative imperatives

The negative imperatives are formed by adding the negative marker plus the negative imperative suffix to the verbal stems that can denote the imperative mood.

- (20) /poo + aa + ta/ → [po:xa:da]<sup>15</sup>  
 'do not go'  
 /taNk + aa + ta/ → [tanga:da]  
 'do not stay'  
 /naɭ + aa + ta/ → [naɖa:da]  
 'do not plant'  
 /kaɭi + aa + ta/ → [kaɖikka:da]  
 'do not bite'

15. See, p. 302/ <sup>and pp. 318-9</sup> for a discussion of the realization of [x] (i.e.  $\emptyset \rightarrow k \rightarrow x$ ).

## 2.4 Suffixes

Except for a few imperative forms, all the other verbal forms are formed by the addition of different kinds of suffixes. These suffixes can be grouped under the following headings:

### I. finite forms

- (a) person - number - gender (PNG) markers.
- (b) negative markers
- (c) imperative markers

### II. non-finite forms

- (a) participial and infinitival endings

Although it is possible to regard tense morphemes as one kind of suffixes, we have reserved them for a detailed analysis in the next section (i.e. 2.5).

#### 2.4.1(a) PNG Markers

PNG endings are mostly suffixed to the past, present or future tense verbal forms. The following forms of the verb /ooɭ/- 'run', illustrate the suffixation of the PNG markers:

1st person (henceforth, [+I] ) [-plural]: -/an/

/ooɭ + iR + an/ → [o:qiRan]

'I am running'

[+plural]: -/am/

/ooɭ + iR + am/ → [o:qiRam]

'we are running'

2nd person (henceforth, [+II] )  $\left[ \begin{array}{l} -\text{plural} \\ -\text{equal} \\ -\text{honorific} \end{array} \right] : -/\text{aay}/$

$/\text{oo}\downarrow + \text{iR} + \text{aay}/ \rightarrow [\text{o:qiRa:}]$   
 'you are running'

$\left[ \begin{array}{l} -\text{plural} \\ +\text{equal} \\ -\text{honorific} \end{array} \right] : -/\text{iir}/$   
 $/\text{oo}\downarrow + \text{iR} + \text{iir}/ \rightarrow [\text{o:qiRi:r}]$

'you are running'

$\left[ \begin{array}{l} -\text{plural} \\ -\text{equal} \\ +\text{honorific} \end{array} \right] : -/\text{iiNka}\downarrow/$   
 $/\text{oo}\downarrow + \text{iR} + \text{iiNka}\downarrow/ \rightarrow [\text{o:qiRi:nga}\downarrow]$

'you are running'

$[+\text{plural}] : -/\text{iya}\downarrow/$   
 $/\text{oo}\downarrow + \text{iR} + \text{iya}\downarrow/ \rightarrow [\text{o:qiRiya}\downarrow]$

'you are running'

As far as the first and second person endings are concerned, there is no distinction between [-human] and [+human]. But in the third person endings, this distinction can be seen:

3rd person (henceforth [+III] ) [+human]:

$\left[ \begin{array}{l} +\text{masculine} \\ -\text{plural} \end{array} \right] : -/\text{aan}/$   
 $/\text{oo}\downarrow + \text{iR} + \text{aan}/ \rightarrow [\text{o:qiRa:n}]$

'he is running'

$\left[ \begin{array}{l} +\text{masculine} \\ +\text{plural} \end{array} \right] : -/\text{aaNko}\downarrow/$

$/\text{oo}\downarrow + \text{iR} +$

/ooɭ + iR + aaNkaɭ/ → [o:qiRa:ŋgaɭ]

'they (mas. pl.)

are running'

[+masculine : -/aar/  
-plural  
+honorific]

/ooɭ + iR + aar/ → [o:qiRa:r]

'he (hon.) is on. pl.)

are running'

[+feminine : -/aaɭ/  
-plural]

/ooɭ + iR + aaɭ/ → [o:qiRa:ɭ]

'she is running'

[+feminine : -/aaɭukaɭ/  
+plural]

/ooɭ + iR + aaɭukaɭ/ → [o:qiRa:ɭuxaɭ]

'they (fem. pl.)

are running'

[+feminine : -/aa/  
-plural  
+honorific]

/ooɭ + iR + aa/ → [o:qiRa:]

'she (hon.) is

running'

[+masculine : -/inam/  
+feminine  
+plural]

/ooɭ + inam/ → [o:qinam]

'they are running'

	$\begin{bmatrix} +III \\ -human \end{bmatrix}$	: -/utu/
/ooḷ + utu/	→	[o:ḡudu]

'it is running'

Before we discuss the above suffixes, a brief comment about the honorific suffixes is necessary. "Honorific suffixes developed in Tamil because the society became arranged into hierarchies of social status" (Meenakshisundaran, 1965: 213). Tolkāppiyam itself speaks of the uyarcoṭkiḷavi or the honorific usage. In the second person finite forms, there are three hierarchies: inferiors, equals and superiors. A similar hierarchical division prevails in the imperative forms also (see, 2.4.1(c)).

Most of the PNG endings are not suffixed straight to the verbal stems, but they are added after the tense morphemes are suffixed to the verbal stems. There are certain exceptions to this general process. For example, the 3rd person epicene plural suffix -/inam/ is added straight to the verbal stems in certain contexts. Consider the following examples:

(21)	/kuuḷ + inam/	→	[ku:ḡinam]
	/tiruNt + inam/	→	[tirundinam]

and compare them with (22) and (23):

(22)	/kuuḷ + v + inam/	→	[ku:ḡuvinam]
	/tiruNt + v + inam/	→	[tirunduvinam]

(23) /



- (23) /kuu] + icc + inam/ → [ku:qiccinam]  
 /tiruNt + icc + inam/ → [tirundiccinam]

A comparison of (21) with (22) and (23) reveals that the suffix -/inam/ is added after the future and past tense morphemes in (22) and (23) respectively. The present tense morpheme is phonologically null in (21) (see, p. 111).

This exceptional case will be taken care of by the rules that supply the PNG terminations to the underlying verb structure (see, PMIR 3 in p. 136).

Another exception is the non-human personal ending -/utu/. This suffix is added straight to the verbal stem to form the present tense non-human finite verbal form:

- (24) /na]a + utu/ → [naqokkudu]  
 'it is walking'  
 /ka]i + utu/ → [kaqikkudu]  
 'it is biting'  
 /eri + utu/ → [eriyudu]  
 'it is burning'

But for the past tense finite forms, it is added after the past tense morpheme:

- (25) /na]a + [+nas][+obs] + utu/ → [naqandudu]  
 'it walked'  
 /ka]i + [+obs][+obs] + utu/ → [kaqiccutu]  
 'it bit'  
 /eri + [+nas][+obs] + utu/ → [eripj]

/eri + [+nas][+obs] + utu → [erinjudu]  
'it burnt'

For the non-human future tense finite forms, this suffix is not added at all. Therefore, the [-hum] PNG marker -/utu/min forms like: /cey + um/ → [seyyum] 'it will do'; /var + um/ → [varum] 'it will come' is phonologically null.

Taking the above exceptions into consideration, the following rules can be thought of supplying the PNG terminations. These are rules which insert the grammatical formatives. As noted earlier (1.5 and 1.6), the grammatical formatives will be supplied from the second lexicon (i.e. lexicon 2) that consists of all the Tamil grammatical formatives. The kind of rules which supply these formatives are PMIR (i.e. phonological matrix insertion rules, see, 1.6). These rules will supply the phonological matrices that represent the syntactic features of the grammatical formatives. For example, the following rule has the syntactic features matrix on the right hand side of the arrow and the phonological matrix on the left hand side:

$$\begin{bmatrix} +I \\ -pl \end{bmatrix} \rightarrow \begin{bmatrix} -cns \\ -fnt \\ +med \\ +low \end{bmatrix} \begin{bmatrix} +cns \\ -obs \\ +nas \\ -ret \\ -fnt \\ +med \\ -bck \end{bmatrix} / [+Vst] + \begin{bmatrix} [+tns] \\ [+neg] \end{bmatrix} [—]$$

But in the rest of the description, the phonological matrix insertion rules will not contain the phonological matrices, instead, the informal alphabetic transcriptions which represent the phonological features will be used:

PMIR 1:

$$\begin{array}{llll}
 [+I] & \rightarrow & \text{an} & / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + \begin{bmatrix} - \\ +pl \end{bmatrix} \\
 & & \text{am} & / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + \begin{bmatrix} - \\ +pl \end{bmatrix} \\
 & & \text{naan} & / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + \begin{bmatrix} - \\ +pl \end{bmatrix} \\
 & & \text{naaNka} & / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + \begin{bmatrix} - \\ +pl \end{bmatrix}
 \end{array}$$

PMIR 2:

$$\begin{array}{llll}
 [+II] & \rightarrow & \text{aay} & / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + \begin{bmatrix} - \\ +pl \\ -eq \\ -hon \end{bmatrix} \\
 & & \text{iya} & / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + \begin{bmatrix} - \\ +pl \end{bmatrix} \\
 & & \text{iir} & / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + \begin{bmatrix} - \\ -pl \\ +eq \\ -hon \end{bmatrix}
 \end{array}$$

## PMIR 2 (continued)

$$\begin{aligned}
 &\rightarrow \text{iiNka} / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{l} - \\ -pl \\ -eq \\ +hon \end{array} \right] \\
 &\text{nii} / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{l} - \\ -pl \\ -eq \\ -hon \end{array} \right] \\
 &\text{niiNka} / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{l} - \\ -pl \\ -eq \\ +hon \end{array} \right]
 \end{aligned}$$

## PMIR 3:

$$\begin{aligned}
 [+III] \rightarrow \text{aan} / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{l} - \\ -pl \\ +mas \\ -hon \\ +hum \end{array} \right] \\
 \text{aanNka} / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{l} - \\ +pl \\ +mas \\ -hon \\ +hum \end{array} \right] \\
 \text{aar} / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{l} - \\ -pl \\ +mas \\ +hon \\ +hum \end{array} \right]
 \end{aligned}$$

## PMIR 3 (continued)

$$\rightarrow \quad aa] \quad / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{c} - \\ -pl \\ +fem \\ -hon \\ +hum \end{array} \right]$$

$$aa]uka] \quad / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{c} - \\ +pl \\ +fem \\ -hon \\ +hum \end{array} \right]$$

$$aa \quad / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ [+neg] \end{array} \right\} + \left[ \begin{array}{c} - \\ -pl \\ +fem \\ +hon \\ +hum \end{array} \right]$$

$$inam \quad / [+Vst] + \left( \begin{array}{l} \left\{ \begin{array}{l} +tns \\ +pst \end{array} \right\} \\ \left\{ \begin{array}{l} +tns \\ -pst \\ -prt \end{array} \right\} \\ [+neg] \end{array} \right) + \left[ \begin{array}{c} - \\ +pl \\ +mas \\ +fem \\ +hum \end{array} \right]$$

$$utu \quad / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ +pst \\ [+neg] \end{array} \right\} + \left[ \begin{array}{c} - \\ -hum \end{array} \right]$$

$$avan \quad / [+Vst] + \left\{ \begin{array}{l} [+tns] \\ +pst \\ \left\{ \begin{array}{l} +tns \\ -pst \\ +prt \end{array} \right\} \end{array} \right\} + \left[ \begin{array}{c} - \\ -pl \\ +mas \\ -hon \\ +hum \end{array} \right]$$

## PMIR 3 (continued)

$$\begin{aligned}
 &\rightarrow \text{avaNka} \quad / \quad [+Vst] \quad + \quad \left\{ \begin{array}{c} [+tns] \\ [+pst] \end{array} \right\} \quad + \quad \left\{ \begin{array}{c} - \\ +pl \\ +mas \\ -hon \\ +hum \end{array} \right\} \\
 &\text{ava} \quad / \quad [+Vst] \quad + \quad \left\{ \begin{array}{c} [+neg] \\ [+tns] \\ [+pst] \end{array} \right\} \quad + \quad \left\{ \begin{array}{c} -pl \\ +fem \\ -hon \\ +hum \end{array} \right\} \\
 &\text{ava} \text{uka} \quad / \quad [+Vst] \quad + \quad \left\{ \begin{array}{c} [+tns] \\ [+pst] \end{array} \right\} \quad + \quad \left\{ \begin{array}{c} +pl \\ +fem \\ -hon \\ +hum \end{array} \right\} \\
 &\text{ava} \quad / \quad [+Vst] \quad + \quad \left\{ \begin{array}{c} [+tns] \\ [+pst] \end{array} \right\} \quad + \quad \left\{ \begin{array}{c} -pl \\ +fem \\ +hon \\ +hum \end{array} \right\} \\
 &\text{avar} \quad / \quad [+Vst] \quad + \quad \left\{ \begin{array}{c} [+tns] \\ [+pst] \end{array} \right\} \quad + \quad \left\{ \begin{array}{c} -pl \\ +mas \\ +hon \\ +hum \end{array} \right\} \\
 &\text{avaya} \quad / \quad [+Vst] \quad + \quad \left\{ \begin{array}{c} [+tns] \\ [+pst] \end{array} \right\} \quad + \quad \left\{ \begin{array}{c} +pl \\ +mas \\ +fem \\ +hum \end{array} \right\}
 \end{aligned}$$



The phonetic realization of the second person singular suffix  $-\text{aay}/$  and the honorific feminine singular suffix  $-\text{aa}/$  is the same. Consider the following examples:

(26)  $/e\text{u} + k\text{iR} + \text{aay}/ \rightarrow [\text{e}\text{q}\text{u}\text{k}\text{i}\text{R}\text{a}:]$   
 'you are taking'

(27)  $/e\text{u} + k\text{iR} + \text{aa}/ \rightarrow [\text{e}\text{q}\text{u}\text{k}\text{i}\text{R}\text{a}:]$   
 'she (hon.) is  
 taking'

Forms in (26) and (27) express the second person singular and the third person feminine honorific singular respectively. The phonetic representations of these two forms look alike. One can legitimately ask why the underlying form of the second person singular suffix is  $-\text{aay}/$  rather than  $-\text{aa}/$ . The decision to set up  $-\text{aay}/$  as the suffix in the underlying level is highly motivated. If we set up  $-\text{aa}/$  as the suffix for both second person singular and the feminine honorific singular, then we will have forms like:

(28)  $/\text{col} + \text{iR} + \text{aa}/ \rightarrow [\text{soll}\text{i}\text{R}\text{a}:]$   
 'she (hon) is telling'

(29)  $/\text{col} + \text{iR} + \text{aa}/ \rightarrow [\text{soll}\text{i}\text{R}\text{a}:]$   
 'you are telling'

The forms in (28) and (29) exhibit structural similarity only when their suffix  $-\text{aa}/$  is in word final position. But the problem arises only when it ceases to be word final.

Suppose we have second person singular and third person feminine honorific singular interrogative forms as in (30) and (31):

(30)  $\text{*/col + iR + aa + ee/} \rightarrow \text{*[solliRa:ve:]}$   
 'are you telling'

(31)  $\text{/col + iR + aa + ee/} \rightarrow \text{[solliRa:ve:]}$   
 'Is she (hon) telling'

If we still maintain that the second person singular suffix is  $\text{-/aa/}$ , then in the interrogative phonetic forms too we will have two identical forms. It should be pointed out that the form generated in (30) (i.e. second person singular interrogative verb) is unacceptable. The correct phonetic form is  $\text{[solliRiye:]}$ . A comparison of the correct phonetic representation and the unacceptable form in (30) shows that we should have a different suffix for the second person singular in the underlying level. Hence, the decision to set up  $\text{-/aay/}$  as the underlying suffix, is made. This will enable us to have not only the correct representation of the second person interrogative form (i.e. motivation to change  $\text{[a:]}$  in  $\text{-/aay/}$  to  $\text{[i]}$  by P 7; see, p. 355 for details of this rule) but also to distinguish it from the feminine honorific singular interrogative form.

Further, the  $\text{/y/}$  element of the suffix  $\text{-/aay/}$  is elided only when it is word final; it remains unchanged when it

ceases to be word final even though a change takes place in the nonconsonantal element that precedes it. The following three forms are the second person singular indicative finite, the second person singular interrogative, and the second person singular quotative:

- (32) /paq̣ + iR + aay/ → [pa:qiRa:]  
'you are singing'
- (33) /paq̣ + iR + aay + ee/ → [pa:qiRiye:]  
'are you singing '
- (34) /paq̣ + iR + aay + aam/ → [pa:qiRiya:m]  
'it seems that you  
are singing'

It is clear from these examples that the /y/ element in the suffix -/aay/ is elided only in the word final position (32) and it remains constant when it is medial. Therefore, the decision to set up -/aay/ as the second person singular suffix is well justified.

#### 2.4.I(b) Negative Markers

As the morphology of the negative verbal forms is adequately dealt with in 2.3, this section concludes with the following rule which supplies the negative suffix and a brief comment on instances where this rule is inoperative:

PMIR 4:

$$[+neg] \rightarrow aa / [+Vst] + [-] + \left\{ \begin{array}{l} \begin{array}{l} [+III] \\ +pl \\ +mas \\ +fem \\ +hum \end{array} \\ \begin{array}{l} [+III] \\ -hum \end{array} \\ \begin{array}{l} +adv \text{ part} \\ +neg \end{array} \\ \begin{array}{l} +cond \\ +neg \end{array} \\ \begin{array}{l} +imp \\ +neg \end{array} \end{array} \right\}$$

As we noted earlier (2.3), the negative marker  $-/aa/-$  is added to very few forms to render negative finite verbs. In PMIR 1 and in PMIR 3 a choice between  $[+neg]$  and  $[+tns]$  can be made. If, for instance,  $[+tns]$  is chosen, then  $[+neg]$  is rejected and vice versa. But the morphological feature  $[+neg]$  in those instances will not be replaced by the phonological matrix of  $-/aa/-$  which should be introduced by PMIR 4. The environmental conditions in PMIR 4 do not allow the phonological matrix of the negative marker to be introduced to match  $[+neg]$  in PMIR 1 and in PMIR 3. Therefore, the  $[+neg]$  in these instances realizes as a phonological null (see, p. 111 for a discussion on phonological null). The only exceptions to this general process are the third person epicene plural and non-human finite verb, which are referred

to in PMIR 3. These are the two instances in PMIR 3 where PMIR 4 will insert the phonological matrix of  $-/aa/-$ .

The feature  $[+neg]$  in PMIR 2 will realize not as  $-/aa/-$  but as a negative modal  $-/maa\ll/-$ . This grammatical morpheme can be infixated between any verbal stem plus infinitive form and any PNG marker. Thus the first person and third person finite verbs can express negation by three ways: (i) without the negative suffix  $-/aa/-$ , (ii) with the negative suffix  $-/aa/-$ , (iii) with the negative modal  $-/maa\ll/-$ . But the second person finite verbs can express negation only by the negative modal  $-/maa\ll/-$  (see, 2.8 where this grammatical morpheme is referred to).

#### 2.4.I(c) Imperative Markers

As seen in 2.2, there are certain verbal stems from which no imperatives are formed. This restriction on the verbal stems has to be made clear in the lexicon. The easiest method to enable the lexicon to carry this information is to mark all those stems that do not participate in the formation of imperatives. The rest of the stems can be left unmarked, thus implying the unmarked stems can participate in the formation of imperatives. Suppose the following stems are listed in the lexicon, the stems that do not participate in the formation of imperatives are marked with the feature  $[-imp]$ :

(35)	/aṭi/-, [+VstIII]	'beat'
	/kuṭi/-, [+VstIII]	'bathe'
	/puri/-, [+VstII], [-imp]	'understand'
	/naṭa/- [+VstIII]	'walk'
	/ini/- [+VstIII], [-imp]	'be sweet'

Thus in the list of verbal stems, that is appended to this work, the feature [-imp] is used to mark the non-imperative stems.

The Tamil imperative forms can be grouped under the following headings:

- (a) positive imperative
- (b) negative imperative
- (c)
- (d) positive imperatives

One kind of imperatives are formed by the verbal stems themselves. The stems ending in: [-cns], /r/, and /y/ are belong to this group. Also belonging to this group are the /ḷ/ ending stems which are either dissyllabic or monosyllabic (if monosyllabic, then the features [-cns][-cns] must precede the final consonant /ḷ/ ):

(36)	/aṭi/	→	++ [aṭi] ++	'beat'
	/naṭa/	→	++ [naṭa] ++	'walk'
	/eri/	→	++ [eri] ++	'burn'
	/kuṭu/	→	++ [kuṭu] ++	'give'



/caa/	→	++ [sa:] ++	'die'
/poo/	→	++ [po:] ++	'go'
/paar/	→	++ [pa:r] ++	'see'
/nuur/	→	++ [nu:r] ++	'switch off'
/tooy/	→	++ [to:y] ++	'wash'
/utay/	→	++ [udε] ++	'beat'
/aviɭ/	→	++ [aviɭ] ++	'untie'
/keeɭ/	→	++ [ke:ɭ] ++	'ask, hear'

The second kind of imperative forms are formed by the addition of the imperative suffix *-/u/* to the verbal stems. This suffix is added to all the verbal stems ending in consonants other than */r/* and */y/*. It is also added to the monosyllabic */ɭ/* ending stems provided the final consonant is not preceded by *[-cns][[-cns]]*:

(37) /tapp + u/	→	[tappu]	'escape'
/naNp + u/	→	[nambu]	'believe'
/kutt + u/	→	[kuttu]	'punch'
/moot + u/	→	[mo:du]	'collide'
/paɔɭ + u/	→	[pa:qu]	'sing'
/peec + u/	→	[pe:su]	'speak'
/nakkk + uu/	→	[nakku]	'lick'
/nil + u/	→	[nillu]	'stand'
/taɭ + u/	→	[taɭɭu]	'push'
/eeR + u/	→	[e:Ru]	'climb'
/parav + u/	→	[paravu]	'spread'

There are two irregular imperatives. They are [va:] 'come' and [ta:] 'give' which are formed from the stems /var/- and /tar/- respectively. It is uneconomical to have rules to derive the former from the latter. Therefore, these irregular forms will be fully specified in the lexicon (see, for example, the details given against these forms in Appendix I ).

The third kind of imperatives are formed by adding the suffix -/an/ to all the verbal stems:

(38)	/aḷi + an/	→	[aḷiyan]	'beat'
	/kuṭu + an/	→	[kuṭan]	'give'
	/kūuṭṭ + an/	→	[ku:ṭṭan]	'sweep'
	/nil + an/	→	[nillan]	'stand'
	/taḷ + an/	→	[taḷḷan]	'push'
	/ayar + an/	→	[ayaran]	'sleep'
	/paṇ + an/	→	[paṇṇan]	'do'
	/cey/+ an/	→	[seyyan]	'do'

The first and second kind of imperatives, along with the above forms belong to one category. That is, they belong to  $\begin{bmatrix} -eq \\ -hon \end{bmatrix}$  division. It is desirable at this juncture to discuss the effect of the social hierarchical divisions in the imperative forms. It has already been pointed out (see, p. 131) that there are three hierarchical divisions in Tamil, namely: inferiors, equals, and superiors, which are marked as  $\begin{bmatrix} -eq \\ -hon \end{bmatrix}$  ,  $\begin{bmatrix} +eq \\ -hon \end{bmatrix}$  ,  $\begin{bmatrix} -eq \\ +hon \end{bmatrix}$  respectively. The

bare roots used as imperatives and those which are formed by adding the suffixes *-/u/* and *-/an/* belong to the first division.

The fourth kind of imperative which belongs to the second division (i.e.  $\begin{bmatrix} +eq \\ -hon \end{bmatrix}$ ) is formed by adding the suffix *-/um/*:

(39)	<i>/eḷuNp + um/</i>	→	<i>[eḷumbum]</i>	'get up'
	<i>/nuḷ + um/</i>	→	<i>[nuḷḷum]</i>	'pinch'
	<i>/taḷḷ + um/</i>	→	<i>[taḷḷum]</i>	'knock'
	<i>/ooḷ + um/</i>	→	<i>[o:ḷum]</i>	'run'
	<i>/muḷi + um/</i>	→	<i>[muḷiyum]</i>	'finish'

The fifth kind of imperative which belongs to the third division (i.e.  $\begin{bmatrix} -eq \\ +hon \end{bmatrix}$ ) is formed by adding the suffix *-/uNkoo/* to the verbal stems:

(40)	<i>-/muḷi + uNkoo/</i>	→	<i>[muḷiyungo:]</i>	'finish'
	<i>/paḷi + uNkoo/</i>	→	<i>[paḷiyungo:]</i>	'study'
	<i>/col + uNkoo/</i>	→	<i>[sollungo:]</i>	'tell'
	<i>/piḷi + uNkoo/</i>	→	<i>[piḷiyungo:]</i>	'catch'
	<i>/veḷḷ + uNkoo/</i>	→	<i>[veḷḷungo:]</i>	'cut'
	<i>/paar + uNkoo/</i>	→	<i>[pa:ruṅḡo:]</i>	'see'

The following rule can be thought of as supplying the imperative suffixes:

PMIR 5:

$$\begin{array}{c}
 \begin{bmatrix} +\text{imp} \\ -\text{neg} \end{bmatrix} \rightarrow u / \left[ \begin{array}{c} +\text{Vst} \\ +\text{cns} \\ \left\{ \begin{array}{c} [+ \text{obs}] \\ [+ \text{nas}] \\ [+ \text{lat}] \\ [- \text{ret}] \\ [- \text{lat}] \\ [+ \text{ret}] \\ [+ \text{app}] \\ [+ \text{fnt}] \\ [+ \text{lat}] \\ [+ \text{ret}] \end{array} \right\} \\ \langle (C) \rangle \text{v}_b \end{array} \right] + \begin{bmatrix} - \\ -\text{eq} \\ -\text{hon} \end{bmatrix}
 \end{array}$$
  

$$\text{an} / [+ \text{Vst}] + \begin{bmatrix} - \\ -\text{eq} \\ -\text{hon} \end{bmatrix}$$
  

$$\text{um} / [+ \text{Vst}] + \begin{bmatrix} - \\ +\text{eq} \\ -\text{hon} \end{bmatrix}$$
  

$$\text{uNkoo} / [+ \text{Vst}] + \begin{bmatrix} - \\ -\text{eq} \\ +\text{hon} \end{bmatrix}$$

(b) negative imperatives

Negative imperatives which express semantically the notion of prohibition are formed by adding the imperative

suffix *-/ta/* to the verbal stem plus negative suffix form:

- |      |                    |   |                |
|------|--------------------|---|----------------|
| (41) | /oot + aa + ta/    | → | [o:q̣a:da]     |
|      |                    |   | 'do not run'   |
|      | /paay + aa + ta/   | → | [pa:ya:da]     |
|      |                    |   | 'do not jump'  |
|      | /eṇ + aa + ta/     | → | [eṇṇa:da]      |
|      |                    |   | 'do not count' |
|      | /tiruNp + aa + ta/ | → | [tirumba:da]   |
|      |                    |   | 'do not turn'  |
|      | /vay + aa + ta/    | → | [vaykka:da]    |
|      |                    |   | 'do not keep'  |

Such negative imperative forms (41) belong to the 

-eq
-hon

 division. The 

+eq
-hon

 and 

-eq
+hon

 negative imperatives are formed by simply adding the positive imperative suffixes -/um/ and -/uNkoo/ to the negative imperatives. Examples for the former are:

- (42) /ciri + aa + ta + um/ → [siriya:dayum]  
 'do not laugh'  
 /eɭut + aa + ta + um/ → [eɭuda:dayum]  
 'do not write'  
 /vaaNk + aa + ta + um/ → [va:ŋga:dayum]  
 'do not buy'  
 /tiRa + aa + ta + um/ → [tiRakka:dayum]  
 'do not open'

Examples for the latter are:

- (43) /kuNta+ aa + ta + uNkoo/ → [kunda:dayungo:]  
 'do not sit'
- /paɭu + aa + ta + uNkoo/ → [paɭukka:dayungo:]  
 'do not sleep'
- /eRi + aa + ta + uNkoo/ → [eRiya:dayungo:]  
 'do not throw'
- /tin + aa + ta + uNkoo/ → [tinna:dayungo:]  
 'do not eat'
- /teey + aa + ta + uNkoo/ → [te:ykka:dayungo:]  
 'do not rub'
- /ceer + aa + ta + uNkoo/ → [se:ra:dayungo:]  
 'do not join'

The following rule can be considered as supplying the negative imperative suffix:

PMIR 6:

$\begin{bmatrix} +\text{imp} \\ +\text{neg} \end{bmatrix}$

→

ta

/

$\begin{bmatrix} +\text{Vst} \end{bmatrix} + \begin{bmatrix} +\text{neg} \\ \text{aa} \end{bmatrix} + \begin{bmatrix} -\text{eq} \\ -\text{hon} \end{bmatrix}$

$\left\{ \begin{bmatrix} +\text{Vst} \end{bmatrix} + \begin{bmatrix} +\text{neg} \\ \text{aa} \end{bmatrix} + \begin{bmatrix} -\text{eq} \\ -\text{hon} \end{bmatrix} + \begin{bmatrix} +\text{eq} \\ -\text{hon} \\ \text{um} \end{bmatrix} \right\}$   
 $\left\{ \begin{bmatrix} -\text{eq} \\ +\text{hon} \\ \text{uNkoo} \end{bmatrix} \right\}$



#### 2.4.1(d) Optative Markers

The main difference between the imperatives and the optatives involves us in a discussion of syntax. The present study is concerned with the phonology of Ceylon spoken Tamil and is not intended as a contribution to syntactic theory in any sense. But whenever there is a need, we shall enter into a certain amount of discussion of syntax. We will present a set of data relevant to the phonology of verb forms that any descriptively adequate syntax of Tamil must have the machinery to handle, but we will remain silent about the exact nature of this machinery. A familiarity with recent work in syntax by Chomsky, Postal, Rosenbaum, Lakoff and Ross is assumed throughout the discussion of syntax.

Tamil imperative and optative differ on various points. Firstly, a social hierarchical division prevails in the imperative forms, whereas the optatives do not have such division. The main difference lies in their syntactic pattern. The imperatives have only a second person deep subject, but the optatives can have any one of the three persons in the deep subject. The following examples will illustrate this difference:

- (44)      ni:r    adiyum  
              1            2  
              'you     $\left[ \begin{array}{c} +eq \\ -hon \end{array} \right]$  beat'  
              1                                  2

(45) ni:ngal      adiungo:  
           1                    2

'you    -eq    beat'  
           +hon            2  
           1

(46) ni:r      adikkala:m  
           1                    2

'you    may beat'  
           1            2

(47) na:n      adikkala:m  
           1                    2

'I    may beat'  
           1            2

(48) avan      adikkala:m  
           1                    2

'he    may beat'  
           1            2

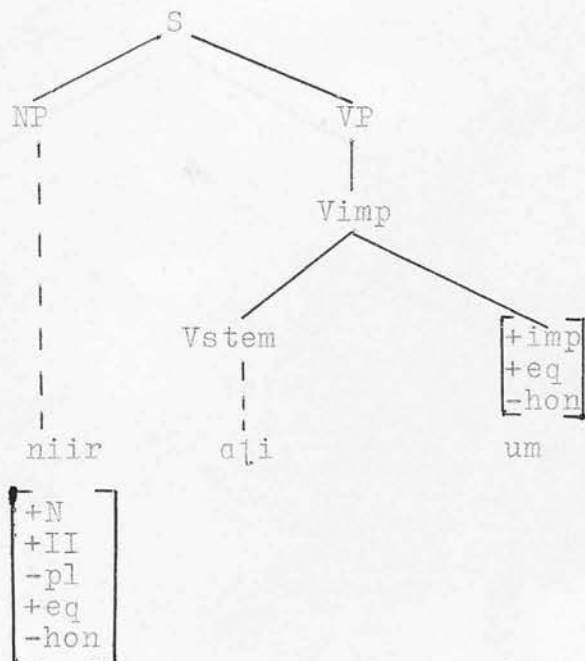


Diagram 2.2. Deep structure diagram of sentence (44)

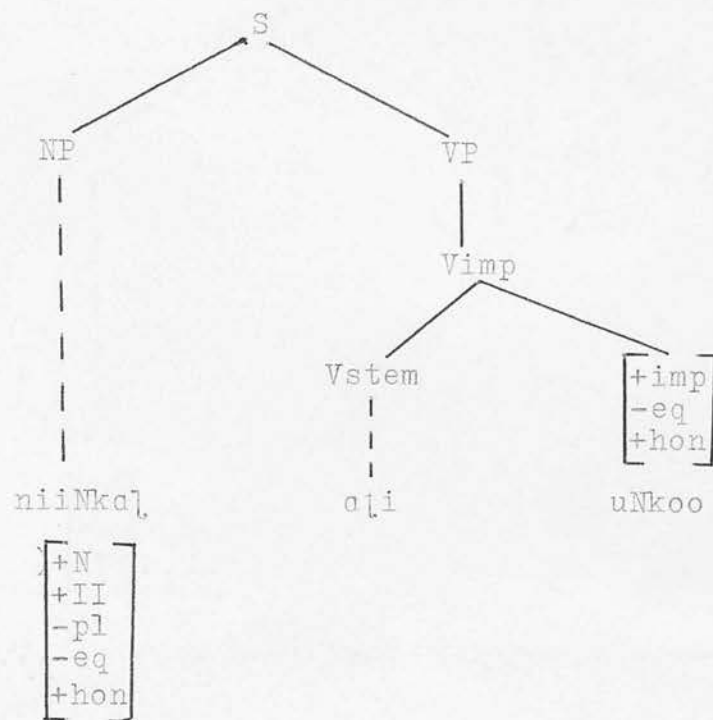


Diagram 2.3. Deep structure diagram of sentence (45)

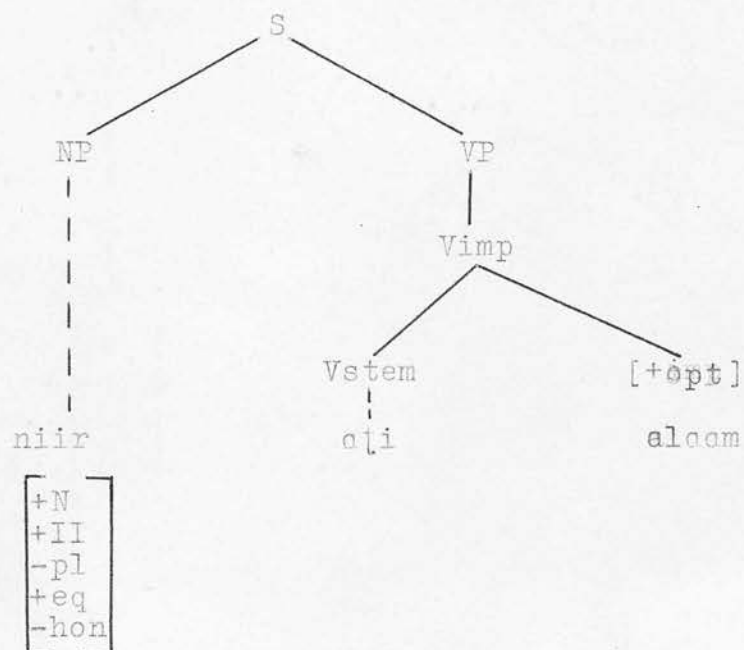


Diagram 2.4. Deep structure diagram of sentence (46)

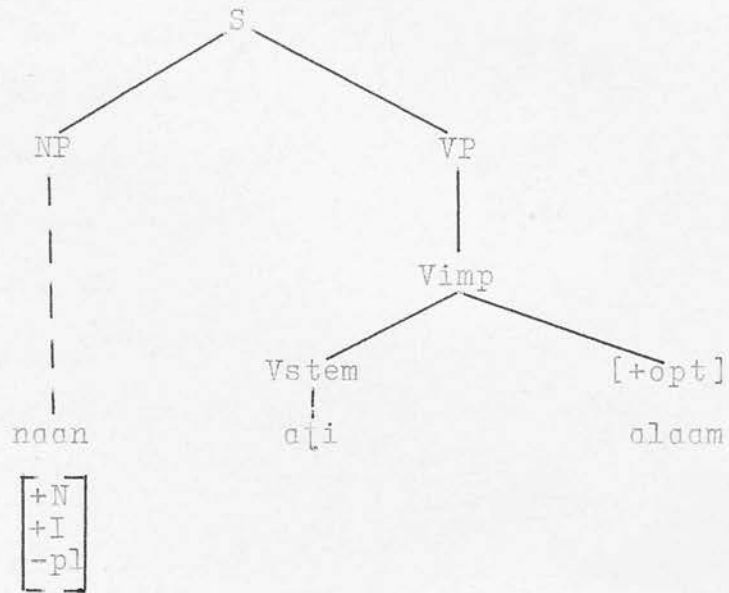


Diagram 2.5. Deep structure diagram of sentence (47)

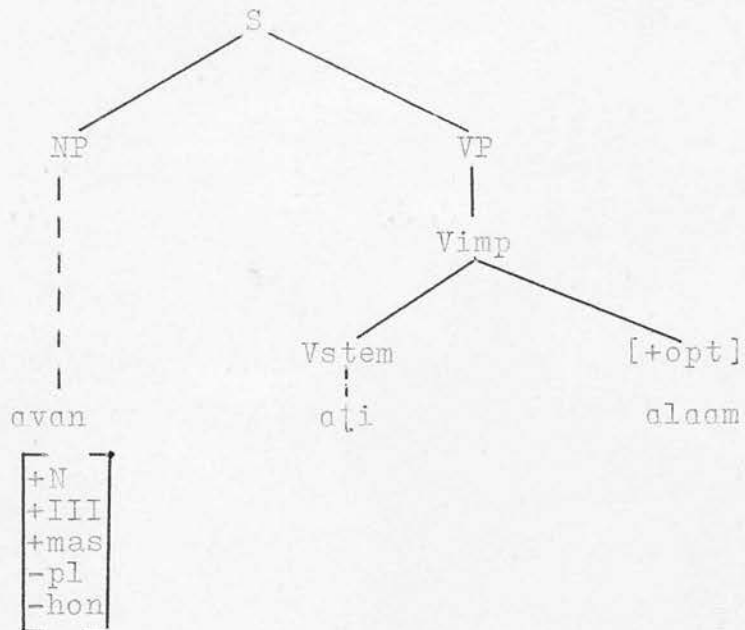


Diagram 2.6. Deep structure diagram of sentence (48)

The deep structure diagrams (Diagram 2.2 - Diagram 2.6) of sentences (44) to (48) reveal another difference between the imperatives and the optatives. That is, the deep subject of the imperative is always in the second person and it may or may not appear in the surface structure. For example (49) and (50) can be considered as equal to the surface sentences of (44) and (45) respectively even though the subjects ni:r and ni:ngol do not appear:

(49)      aḍiyum            'you beat'

(50)      aḍiyungo:        'you beat'

This optional deletion of the subject of the Tamil imperative sentences can take place because of the concord prevailing between the subject and the imperative verb (compare, Diagrams 2.2 and 2.3). But in the case of the optatives the deep subjects have to be realized in the surface because of the absence of the concordial relationship between the subject and the optative verb.

The optative markers are *-/aḍaam/* and *-/aḍiḷum/*. These suffixes are added straight to the verbal stems to form optative verbs. The former can have any one of the three persons as its subject; but the latter can have only the first and the third persons. The following rule supplies the phonological matrices of the optative markers:

PMIR 7:

[+opt]                      →                       $\begin{Bmatrix} \text{alaam} \\ \text{aṭṭum} \end{Bmatrix}$                       /    [+Vst] + [—]

The following can be given as examples of Tamil optative verbs:

- |      |                 |   |              |                       |
|------|-----------------|---|--------------|-----------------------|
| (51) | /kuni + alaam/  | → | [kuniyala:m] |                       |
|      |                 |   |              | 'may bend'            |
|      | /koNc + alaam/  | → | [koṇjala:m]  |                       |
|      |                 |   |              | 'may kiss'            |
|      | /uṭu + alaam/   | → | [uṭukkala:m] |                       |
|      |                 |   |              | 'may dress'           |
|      | /mali + alaam/  | → | [maliyala:m] |                       |
|      |                 |   |              | 'may become cheap'    |
|      | /kaṭṭi + aṭṭum/ | → | [kaṭṭaṭṭum]  |                       |
|      |                 |   |              | 'let (me or him) tie' |
|      | /uṭay + aṭṭum/  | → | [uṭayaṭṭum]  |                       |
|      |                 |   |              | 'let (it) break'      |

#### 2.4.II(a) Participial and Infinitival endings

All the non-finite forms of the Tamil verbs are referred to here as either participial or infinitival forms. They are grouped under the following headings:

- (a) positive adverbial participles
- (b) positive adjectival participles



- (c) positive conditionals
- (d) negative adverbial participles
- (e) negative adjectival participles
- (f) negative conditionals
- (g) infinitives

The suffixes that are used to form the above verbal forms are: (a) *-/u/* or *-/i/*, (b) *-/a/*, (c) *-/aal/*, (d) *-/mal/*, (e) *-/ta/*, (f) *-/i[aa]l/*, (g) *-/a/*. Apart from the positive adverbial participles, all other forms have only one suffix each.

(a) positive adverbial participles

Suffixes *-/u/* and *-/i/* are distributed according to the tense markers of the verbal stems. Those verbal stems which take the past tense marker *-/in/-* are added with the suffix *-/i/*, whereas, the other stems take *-/u/*. The latter is added after the past tense markers, but in the case of the former the past tense marker *-/in/-* does not appear in the adverbial participles. The past tense marker in these forms can said to be phonologically null (see, p. 111). Therefore, the suffix *-/i/* is added straight to the stems. The following are the examples for the positive adverbial participles in Ceylon spoken Tamil:

(52) /ka[ɔ]/+ [+nas][+obs]+ u/ → [kaɔndu]

'having crossed'

/kuRay + [+obs][+obs] + u/	→	[kuRaccu]	'having shortened'
/keeɭ + [+obs][+obs] + u/	→	[ke:ɭu]	'having heard'
/niɭ + [+nas][+obs] + u/	→	[niŋɖu]	'having stood'
/paɭi + [+obs][+obs] + u/	→	[paɖiccu]	'having studied'
/aɭi + [+obs][+obs] + u/	→	[aɖiccu]	'having beaten'
/niraNp + i/	→	[nirambi]	'having filled'
/taɭ + i /	→	[taɭɭi]	'having pushed'
/eeR + i/	→	[e:Ri]	'having climbed'
/teeɭ + i /	→	[te:ɖi]	'having searched'
/peec + i/	→	[pe:si]	'having talked'
/ott + i/	→	[ottɭi]	'having pasted'
/taɭɭ + i/	→	[taɭɭi]	'having knocked'

The following rule introduces the positive adverbial participial endings:

PMIR 8:

$$\begin{array}{c} \boxed{\begin{array}{l} +adv \text{ part} \\ -neg \end{array}} \end{array} \rightarrow u \quad / \quad [+Vst] + \left[ \begin{array}{c} \boxed{\begin{array}{l} +tns \\ +pst \end{array}} \\ \left\{ \begin{array}{l} [+obs] \\ [+obs][+obs] \\ [+nas][+obs] \end{array} \right\} \end{array} \right] + [-]$$
  

$$i \quad / \quad \left[ \begin{array}{c} +Vst \\ \left\{ \begin{array}{l} ++(C)V \left[ \begin{array}{l} +cns \\ +lat \\ +ret \end{array} \right] \\ ++(C)V \left[ \begin{array}{l} +cns \\ +obs \end{array} \right] \\ ++VV \left[ \begin{array}{l} -lat \\ +ret \end{array} \right] \\ [+cns][+cns] \end{array} \right\} \end{array} \right] + [-]$$

(b) positive adjectival participles

The Tamil adjectival participles or relative participles are divided into two according to the tense. Unlike the positive finite indicative forms which express time in past, present and future, the positive adjectival participles express time either in past or in non-past. consider the following examples:

(53) paqicca pa:qam  
           1          2

'the lesson that is studied'  
           2                  1

(54) paqikkiRa pa:qam  
           1          2

'the lesson that is being studied'  
           2                  1

or

'the lesson that will be studied'  
           2                  1

In (53) the adjectival participle [paqicca] has the **past** tense marker [cc]. But in (54) the adjectival participle [paqikkiRa] has the present tense marker [kkiR] which expresses not only the present tense but also the future tense. Therefore, in time scale, the positive adjectival participles can be divided as past positive adjectival participles and non-past positive adjectival participles. Thus the adjectival participial suffix **-/a/** is added to the form which consists of a verbal stem plus past or present tense marker in order to form a positive adjectival participle. The following rule introduces the suffix **-/a/**:

PMIR 9:

$$\boxed{\begin{matrix} +adj & part \\ -neg \end{matrix}} \rightarrow a / [+Vst] + \left\{ \begin{matrix} \boxed{\begin{matrix} +tns \\ +pst \end{matrix}} \\ \boxed{\begin{matrix} +tns \\ -pst \\ +prt \end{matrix}} \end{matrix} \right\} + [—]$$

The following are examples for the positive adjectival participial verbs:

(55)

past forms

/toṭ + [+obs] + a/	→	[toṭṭa]	
			'which (subject) touched'
/muṭi + [+obs][+obs] + a/	→	[muṭicca]	
			'which (subject) finished'
/paṇ + in + a/	→	[paṇṇina]	
			'which (subject) did'

non-past forms

/iru + kkiR + a/	→	[irukkiRa]	
			'who or which { is sitting' }
			{ will be sitting' }
/pori + kkiR + a/	→	[porikkiRa]	
			'which { is frying' }
			{ will be frying' }
/col + iR + a/	→	[solliRa]	
			'who { is saying' }
			{ will be saying' }

(c) positive conditionals

Positive conditionals are formed by adding the suffix -/aḍl/ to the past tense verbal forms. PMIR 10 introduces the positive conditional suffix:

PMIR 10:

$$\begin{bmatrix} +\text{cond} \\ -\text{neg} \end{bmatrix} \rightarrow \text{aal} / [+Vst] + \begin{bmatrix} +\text{tns} \\ +\text{pst} \end{bmatrix} + [—]$$

The following are the examples:

- (56) /maRi + [+obs][+obs] + aal/ → [maRicca:l]  
 'if stopped'  
 /kol + [+nas][+obs] + aal/ → [konqa:l]  
 'if killed'  
 /pooɬ + [+obs] + aal/ → [po:ɬa:l]  
 'if dropped'  
 /puur + [+nas][+obs] + aal/ → [pu:nda:l]  
 'if entered'  
 /aRi + [+nas][+obs] + aal/ → [aRipja:l]  
 'if known'  
 /ceer + [+nas][+obs] + aal/ → [se:nda:l]  
 'if joined'  
 /aaɬ + in + aal/ → [a:qina:l]  
 'if danced'

(d) negative adverbial participles

Negative adverbial participles are formed by adding the suffix *-/mal/* to the verbal stem plus negative suffix form. The following rule introduces this suffix:

PMIR 11

$$\begin{bmatrix} +\text{adv part} \\ +\text{neg} \end{bmatrix} \rightarrow \text{mal} / [+Vst] + [+neg] + [—]$$



The following are the examples for the negative adverbial participial verbs:

(57) /kaaḷ + aa + mal/	→	[ka:ḷa:mal]	
			'without showing'
/teri + aa + mal/	→	[teriya:mal]	
			'without being seen'
/kuluNk + aa + mal/	→	[kulunga:mal]	
			'without being shaken'
/aḷi + aa + mal/	→	[aḷiya:mal]	
			'without erasing'
/vel + aa + mal/	→	[vella:mal]	
			'without winning'

(e) negative adjectival participles

These are formed by adding the suffix *-/ta/* to the verbal stem plus negative suffix form. The following rule supplies this suffix:

PMIR 12:

$\begin{bmatrix} +adj \text{ part} \\ +neg \end{bmatrix}$	→	ta	/ [+Vst] + [+neg] + [—]
---	---	----	-------------------------

The following will suffice as examples of negative adjectival participial verbs:

(58) /tin + aa + ta/	→	[tinna:da]	
			'has not eaten'

/col + aa + ta/	→	[solla:da]	
			'has not told'
/vi <u>l</u> u + aa + ta/	→	[vi <u>l</u> a:da]	
			'has not fallen'
/tiruNt + aa + ta/	→	[tirunda:da]	
			'has not improved'

(f) negative conditionals

Negative conditionals are formed by adding the suffix *-/illaal/* to the verbal stem plus negative suffix form. The following rule introduces the negative conditional suffix:

PMIR 13:

$\begin{bmatrix} +\text{cond} \\ +\text{neg} \end{bmatrix}$	→	i <u>l</u> laal / [+Vst] + [+neg] + [—]
---	---	---

Following are the negative conditional verbs:

(59) /vi <u>l</u> + aa + i <u>l</u> laal/	→	[vi <u>l</u> a:la:]	
			'if not leave'
/katt + aa + i <u>l</u> laal/	→	[katta:la:]	
			'if shout not'
/cemi + aa + i <u>l</u> laal/	→	[semikka:la:]	
			'if digest not'
/coRi + aa + i <u>l</u> laal/	→	[soRiya:la:]	
			'if scratch not'

(g) infinitives

The phonological forms of the adjectival participial suffix and the infinitival suffix are one and the same (i.e.  $-/a/$ ). But the manner in which the suffix is added makes the distinction. It is added to the verbal stem plus past or present tense form to make an adjectival participle, but the infinitives are formed by adding the suffix  $-/a/$  straight to the verbal stem. A phonetic realization of [kk] will be encountered when the infinitive suffix is added to a Class II verbal stem ( see, note 1, pp. 105-6). This (i.e. [kk]) will be encountered only in the phonetic representations, but not in the underlying phonological representations. Thus, an underlying phonological representation of an infinitive will contain only the matrices of the verbal stem and the infinitive suffix.

Infinitives are differentiated from participles in this work ( see, Diagram 2.1, p. 107). Traditional grammarians have included all participles and infinitives in one category called eccam. The main distinction they have in this category is between the peyar eccam and vinay eccam (see, 2.1(b) for the meaning of these terms). There is a strong syntactic motivation for the distinction which we have made between the participles and infinitives. Adjectival, adverbial and conditional participles are referred to as participles proper. Adjectival and adverbial participles

have one common feature in their syntactic structures. Both are subject to embedding transformation; and in both their deep structures, the sentences that will be subject to an embedding transformation will necessarily have identical subjects. The deep structure diagrams (Diagrams 2.7 and 2.8) of the sentences (60) and (61) will reveal this fact. Surface sentence (60) contains the adverbial participle [vandu] 'having come' and (61) contains adjectival participle [vanda] 'who or which came':

- (60)    na:n vandu pa:ttan  
          1        2        3  
          'having come, I saw  
                      2        1        3
- (61)    vanda pe:qiyān po:na:n  
          1        2        3  
          'the boy who came went'  
                      2        1        3

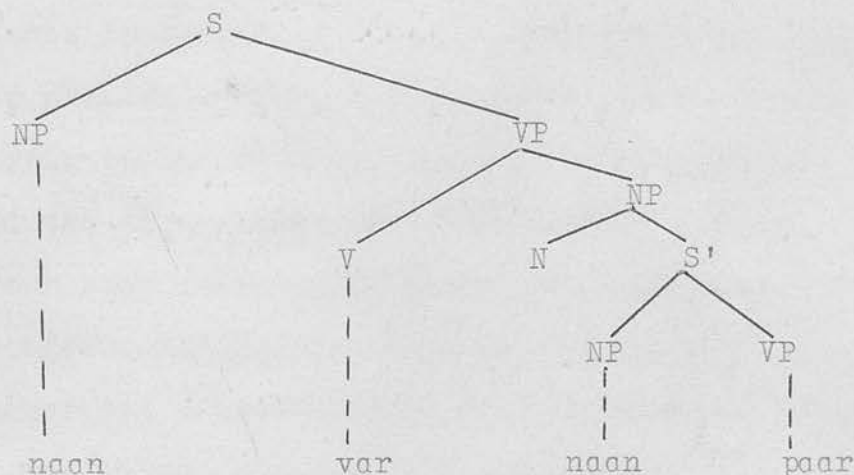


Diagram 2.7 Deep structure diagram of sentence (60)

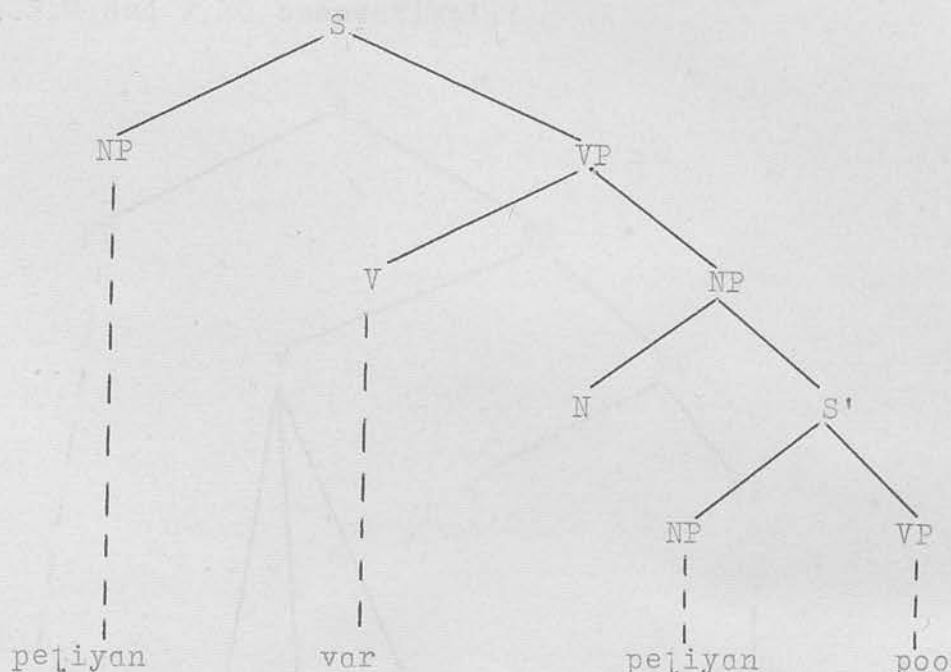


Diagram 2.8 Deep structure diagram of sentence (61)

Several transformations, among them "equi-NP deletion" (which deletes one of the instances of /naan/ in Diagram 2.7 and one of the instances of /peḷiyan/ in Diagram 2.8), "complémentizer placement" (which places the adverbial participial suffix to the right of the verb stem /var/ in Diagram 2.7 and the adjectival participial suffix to the right of the verb stem /var/ in Diagram 2.8), and "person-number-gender agreement" (which attaches the person and number features of the subject /naan/ in the former diagram and /peḷiyan/ in the latter diagram onto the main verbs /paar/ in the former and /poo/ in the latter respectively) then map Diagram 2.7 and Diagram 2.8 onto the derived tree

Diagrams 2.9 and 2.10 respectively:

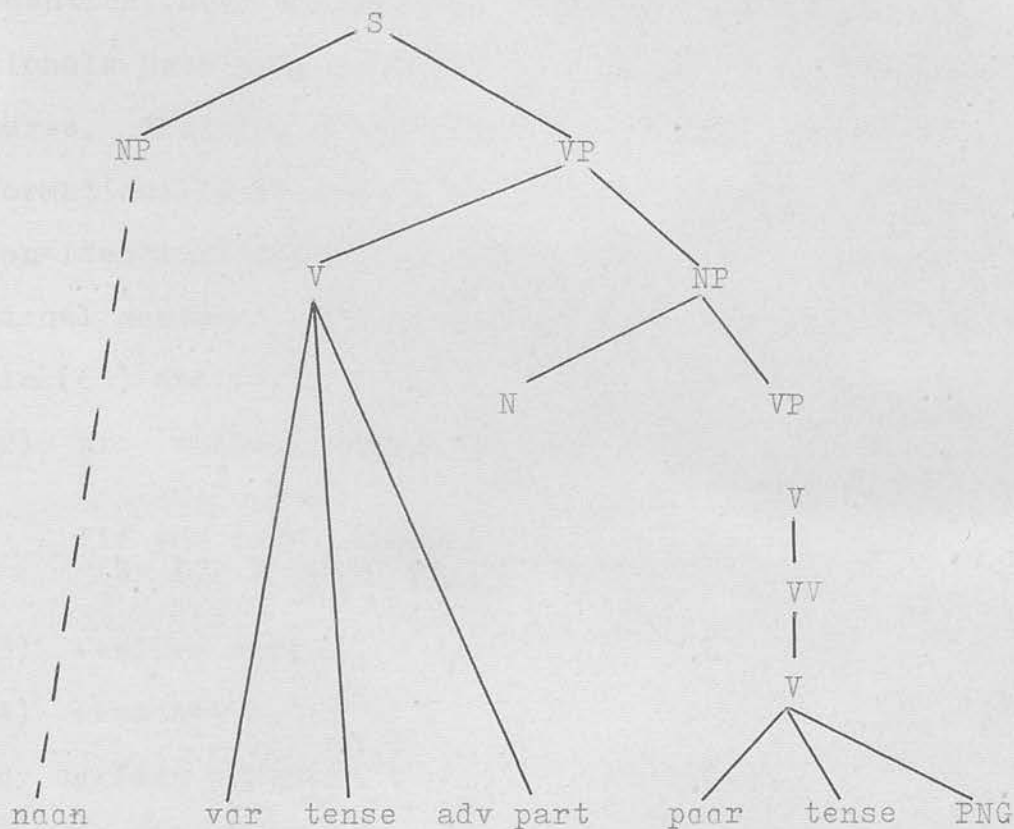


Diagram 2.9 Derived diagram of sentence (60)

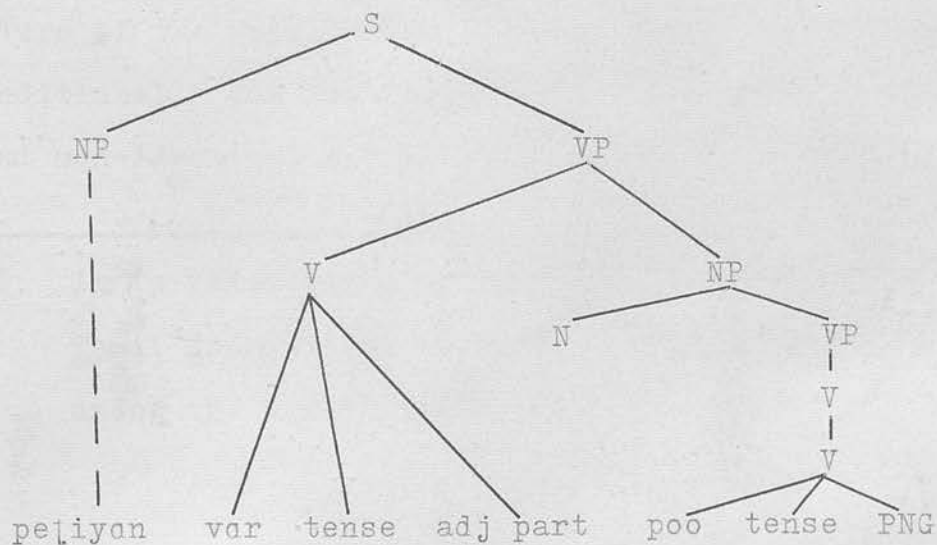


Diagram 2.10 Derived diagram of sentence (61)



While adverbial participles and adjectival participles have identical deep subjects in the deep structures, the conditionals have only non-identical subjects in the deep structures. That is, a conditional sentence is derived transformationally by embedding two deep sentences which have non-identical subjects. For example, the surface conditional sentence (62) is derived from the underlying forms in (63) and (64):

(62) ni: vanda:l na:n po:van  
       1       2       3       4

'if you come, I will go  
       2 1   2   3 4   4

(63) ++nii++ var+

(64) ++naan++ poo++

Thus any surface sentence which has a participle either will have identical subjects in the deep structure if the participial form in the surface structure is adverbial or adjectival; or will have non-identical subjects in the deep structure if the participial form in the surface structure is conditional. But the infinitives can have both identical and non-identical subjects.<sup>16</sup> Consider for example,

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16. It is interesting to note that the traditional Tamil grammarians have these three distinctions among the non-finite verbs. They are:

(continued)

the infinitive form tinno 'to eat' in the following sentences:

(65) na:n tinnap po:nan  
1 2 3

'I went to eat'  
1 3 2 2

(66) na:n tinnap po:na:n  
1 2 3

'he went (while) I was eating'  
3 3 1 2 2

The sentence (65) can be considered to be the surface form of the underlying structures (67) and (68):

(67) ++naan++ tin+

(68) ++naan++ poo++

The sentence (66) can be considered to be the surface form of the underlying structures (69) and (70):

(69) ++naan++ tin+

(70) ++avan++ poo++

- (a) tan karutta:vin vinay (i.e. subject of the participial form and the subject of the main verb are identical)
- (b) piRa karutta:vin vinay (i.e. non-identical)
- (c) tan karutta:vin vinayum piRa karutta:vin vinayum (i.e. both identical and non-identical).

The commentator of Nannūl (sutra, 344, commentary p. 362) has given these three divisions.

These examples show that the surface structures in which infinitives occur can transformationally be derived either from two sentences which have identical subjects in the deep structure or from two sentences which have non-identical subjects in the deep structure.

Therefore, the syntactic constraint on the participles and the infinitives is this: a surface sentence which has either an adverbial participle or an adjectival participle can transformationally be derived from two sentences which have only identical subjects in the deep structure; but not non-identical subjects. A surface sentence which has a conditional participle can transformationally be derived from two sentences which have only non-identical subjects in the deep structure; but not identical subjects. But a surface sentence which has an infinitive can be derived either from two sentences which have identical subjects or from two sentences which have non-identical subjects in the deep structure. The following rule can be thought of as supplying the infinitive suffix:

PMIR 14

[+infin]                      →                      a        /    [+Vst] + [—]

The following will suffice as examples for the infinitives:

(71)	/a]u + a/	→	[a]a]	'to cry'
	/o]t] + a/	→	[o]t]a]	'to paste'
	/tiRa + a/	→	[tiRakka]	'to open'

/uri + a/	→	[uriya]	'to undress'
/taɭu + a/	→	[taɭukka]	'to stop'
/alaNp + a/	→	[alamba]	'to rinse'
/eRi + a/	→	[eRiya]	'to throw'
/kaaŋ + a/	→	[ka:ŋa]	'to meet'

## 2.5 Tense Morphemes

Scattered references have been made to tense markers in the preceding sections. A formal analysis of them will be undertaken in this section. The phonetic forms of the tense markers are listed below:

(72) present tense

[iR] and [kkiR]

(73) past tense

[d], [t], [nd], [ɲj], [ŋd], [tt], [cc], [ɭɭ],  
[in] and [icc]

(74) future tense

[v], [pp] and [um]

In 2.2, the classification of the verbal stems has been done in relation to the present and future tense markers. The dictionary entry for the present and future tenses will be as same as that of (72) and (74). But the dictionary entry for the past tense markers is not as that of (73). It seems necessary to postulate four sets of past tense

markers:

- |      |       |                  |
|------|-------|------------------|
| (75) | (i)   | [d], [t]         |
|      | (ii)  | [nd], [ɲj], [ɲd] |
|      | (iii) | [tt], [cc], [tɬ] |
|      | (iv)  | [in], [icc]      |

The tense markers in 75(iv) do not pose any problem as they are entered in the second lexicon as they are. But for the other three, it is desirable to have three underlying forms from which these phonetic forms can be derived.

Let us first examine the environments in which these phonetic forms occur. [d] appears when the verbal stem belongs to Class I and the ending is -/u/. [t] occurs when the verbal stem belongs to Class I and the ending is -/ɬ/. -/a/ ending verbal stems take [nd] as their past tense marker. [ɲj] occurs with Class II verbal stems which end in /i/ or /y/. [ɲd] appears with Class I verbal stems which end in any one of the following: /l, ɭ, n, ɲ/. [tt] occurs with verbal stems belonging to Class II and have the following endings: /u, uu, r/. If the Class II verbal stems have /i/ or /y/ as their endings, then, [cc] is found as the past tense marker. [tɬ] occurs with Class II verbal stems which have the following endings: /l, ɭ, ɬ/. Now it is possible to classify the phonetic forms of the past tense markers as follows:



(76)

Class I:

[d]	:	a <u>l</u> u - d - an	'I cried'
[t]	:	vi <u>t</u> - t - an	'I left'
[pɲ]	:	ari - pɲ - an	'I cut'
	:	pa: - pɲ - an	'I jumped'
[ɲd]	:	ta: - ɲd - an	'I drowned'
[in]	:	pa:d - in - an	'I sang'
[icc]	:	o:d - icc - udu	'it ran'

Class II

[tt]	:	equ #ttt - an	'I took'
[cc]	:	paRi - cc - an	'I snatched'
[tɪ]	:	ke: - tɪ - an	'I heard'
[nd]	:	naɖa - nd - an	'I walked'

There is a small number of exceptions to this generalization in (76). Those verbal stems which defy the above classification are:

(77) Class I: (a) /vilu/- 'fall'

(b) all /r/ ending stems:

e.g. /tar/- 'give'

/var/- 'come'

/uyar/- 'rise'

/ceer/-ɲ 'join'

(c) /caa/- 'die'

Class II: /nil/- 'stand'



Stems belonging to (a), (b) and the stems in (c) of (77) take [nd] and [tt] as their past tense markers respectively. These two markers belong to Class II according to (76). Similarly, the stem /nil/- takes [nd] as its past tense marker. The stem belongs to Class II; but the tense marker according to (76) belongs to Class I. These exceptions are too few in number to invalidate the generalization that has been made in (76). The best way to handle these exceptions is to specify them in the lexicon as follows:

(78)	<u>viu:</u>	Vstem, I, +pst [+nas][+obs]
	<u>tar:</u>	Vstem, I, +pst [+nas][+obs]
	<u>var:</u>	Vstem, I, +pst [+nas][+obs]
	<u>uyar:</u>	Vstem, I, +pst [+nas][+obs]
	<u>ceer:</u>	Vstem, I, +pst [+nas][+obs]
	<u>caa:</u>	Vstem, I, ce + +pst tt
	<u>nil:</u>	Vstem, II, +pst [+nas][+obs]

Let us now return to the discussion of the dictionary entry for the past tense forms. The different phonetic forms of the past tense markers (except [in] and [icc]) and the environments in which they occur suggest that they can be derived from three underlying forms. The three

underlying forms which we propose to have are: [+obs], [+nas][+obs] and [+obs][+obs]. These forms will be realized at the phonetic level by such forms as [d], [t], [nd], [ɲj], [ɲd], [tt], [cc], [tɬ] by a set of simple rules which perform only the operation of "additioning" transformations. That is, the distinctive features of the individual segment of each morpheme in the phonetic representation will be supplied by a set of redundancy rules (see, R 16 to R 20). Having three abstract forms in the underlying level and deriving their actual phonetic forms by a set of R-rules, will not only contribute to the overall simplicity of the grammar but also would comply with a natural synchronic analysis of the past tense markers in the verbal forms of the Ceylon spoken Tamil. What we mean by natural synchronic analysis will be explained now. William Bright and Jacqueline Lindenfeld (1968: 33-9) in their study of the "Complex verb forms in colloquial Tamil" regard /d/ as the underlying form of the past tense marker and derive the other forms (such as [tt], [tɬ], [cc], etc. ) from it by phonological rules. This decision might have contributed much simplicity to their analysis. But there is no justifiable motivation<sup>17</sup> for them to have a dental obstruent as

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17. Only a diachronic motivation can be given. That is, the well known palatalization process in the

an underlying form and then deriving the other forms by a series of mutations. A grammatical model which is committed to a synchronic description of a natural language should be able to present its forms naturally. Consider for example the /i/ ending verbal stems of Class II. These stems always have [cc] as their past tense form and they never have dental obstruents. Thus, positing dental obstruents as the underlying form in these cases and deriving [cc] from it will not be in accord with actual usage. The natural and actual usage of the language should not be sacrificed in favour of the simplicity of the model of description.<sup>18</sup> Therefore, we choose to have three abstract forms in the underlying level and the actual forms will be mapped by the redundancy rules (i.e. R 16 to R 20 in 4.4).

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Dravidian languages for instance. A comparison of the written and spoken Tamil will reveal that in places where written Tamil uses dental obstruents as past tense after /i/ or /y/ ending verbal stems, spoken Tamil will have palatal obstruents only.

18. See, Makkai (1969: 11-17) for a similar criticism against the generative morphophonemic rules.

The following rules can be considered as introducing the phonological matrices of the tense markers:

PMIR 15:

$$\begin{bmatrix} +tns \\ -pst \\ +prt \\ +hum \end{bmatrix} \rightarrow \begin{matrix} iR & / & [+Vst I] + [—] \\ kkiR & / & [+Vst II] + [—] \end{matrix}$$

PMIR 16:

$$\begin{bmatrix} +tns \\ -pst \\ -prt \\ +hum \\ \langle -hum \rangle_a \end{bmatrix} \rightarrow \begin{matrix} \begin{matrix} v \\ \langle um \rangle_b \end{matrix} & / & [+Vst I] + [—] \\ \begin{matrix} pp \\ \langle um \rangle_b \end{matrix} & / & [+Vst II] + [—] \end{matrix}$$

PMIR 17:

$$\begin{bmatrix} +tns \\ +pst \\ xhum \\ \langle +hum \rangle_a \\ \langle -hum \rangle_c \end{bmatrix} \rightarrow [+obs] / \left[ \begin{matrix} +Vst I \\ \begin{bmatrix} +iC & +lat & -cns \\ ++C & +ret & -fnt \\ & & -med \\ & & -low \end{bmatrix} \\ ++ CV \begin{bmatrix} +cns \\ +obs \end{bmatrix} \end{matrix} \right] + [—]$$

PMIR 17 (continued)

$$\begin{array}{c}
 \rightarrow \quad [+nas][+obs] \quad / \quad \left[ \begin{array}{c} +Vst \text{ I} \\ [+lat] \\ \left[ \begin{array}{c} -lat \\ -ret \end{array} \right] \\ \left\{ \begin{array}{c} +app \\ -fnt \end{array} \right\} \\ \left[ \begin{array}{c} -cns \\ +fnt \\ -med \\ -low \end{array} \right] \end{array} \right. + [- -] \\
 \\
 \left[ \begin{array}{c} +Vst \text{ II} \\ \left[ \begin{array}{c} -cns \\ -fnt \\ +med \\ +low \end{array} \right] \end{array} \right. \# [- -]
 \end{array}$$

$$\begin{array}{c}
 [+obs][+obs] \quad / \quad \left[ \begin{array}{c} +Vst \text{ II} \\ \left[ \begin{array}{c} -cns \\ xfnt \\ -med \\ ylow \end{array} \right] \\ \left\{ \begin{array}{c} [+lat] \\ \left[ \begin{array}{c} -lat \\ -ret \end{array} \right] \\ \left[ \begin{array}{c} +app \\ -fnt \end{array} \right] \end{array} \right\} \end{array} \right. + [- -]
 \end{array}$$



## PMIR 17 (continued)

$$\begin{array}{c} \rightarrow \end{array} \begin{array}{c} \langle \text{in} \rangle_b \\ \langle \text{icc} \rangle_d \end{array} / \left[ \begin{array}{c} +Vst \text{ I} \\ [+cns][+cns] \\ \left. \begin{array}{c} VV [+cns] \\ [+obs] \\ VV [-lat] \\ [+ret] \end{array} \right\} \end{array} \right] + \begin{array}{c} [- -]_b \\ [- - -]_d \end{array}$$

Let us examine briefly the [-human] tense markers. [-hum] verbal forms do not express the scale of time in past, present and future by three separate tense markers. They do not have a present tense marker; only the past and future tense markers are there.<sup>19</sup> The verbal forms devoid of any tense signs express neutrality in the scale of time; this can be considered as the present tense;<sup>20</sup> the past and

- 
19. In Ceylon spoken Tamil, the scale of time in future is expressed fully by a separate tense marker only in the finite forms. In all other forms, the scale of time in present and future is expressed by a single tense marker (i.e. present tense marker /iR/ or /kKiR/) which in finite forms express the present tense only. The Tamil grammarians refer to this as nika[vil etirvu] (i.e. future in present). They also mention iRantaka:lattu nika[vu] (i.e. present in past)

(continued)



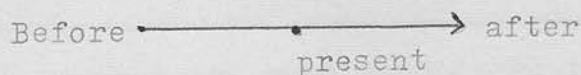
the future tenses are expressed by their respective signs. Thus, the [-hum] present tense verbal stems are formed by adding the [-hum] PNG marker -/utu/ straight to the verbal stems. The present tense sign in these instances can be regarded as phonologically null (see, p. 111):

(79) /ooɬ + utu/	→	[o:ɬudu]	'it is running'
/paɬy + utu/	→	[pa:yudu]	'it is jumping'
/toNk + utu/	→	[toŋgudu]	'it is hanging'
/karɬy + utu/	→	[karɬyudu]	'it is melting'
/paɬɬ + utu/	→	[pa:ɬudu]	'it is singing'
/tin + utu/	→	[tinnudu]	'it is eating'

---

and etirka:lattu nikaɬvu (i.e. present in future).

20. Jespersen's (1929: 257) time scale can be compared with this. His diagram:



shows that the present tense in a neutral position.

Past tense markers which occur in [+hum] verbal forms also occur in [-hum] verbal forms. The only exception is the tense marker *-/in/-* occurs only in [+hum] forms; whereas *-/icc/-* occurs only in [-hum] forms. The future tense is denoted by the suffix *-/um/*.<sup>21</sup> The peculiarity of [-hum] future verbal forms is that, they do not have the [-hum] PNG marker *-/utu/* which occurs both in present and past tense forms. The following are the examples for the [-hum] future tense verbs:

(80) <i>/viḷ + um/</i>	→	[viḷum]	
			'it will fall'
<i>/var + um/</i>	→	[varum]	
			'it will come'
<i>/viṭṭi + um/</i>	→	[viṭṭiyum]	
			'it will dawn'
<i>/katt + um/</i>	→	[kattum]	
			'it will shout'
<i>/karuk + um/</i>	→	[karuxum]	
			'it will burn'
<i>/uur + um/</i>	→	[u:rum]	
			'it will crawl'

---

21. The Tamil grammarians have considered this suffix as expressing the future tense. See, for example, Nannūḷ, sutra, 340, p. 354-5.

## 2.6 Derived Verbal Bases and Nominals

### 2.6.1 Preliminary Remarks

The classified verbal stems in Appendix I can be subjected to further derivations by regular morphological processes. The three main derivations which will be analysed in this section will be: the transitive -cum - causative base derivation, the verbal noun derivation and the participial noun derivation. The derived bases which belong to the first are inflected as ordinary verbal stems and take all the verbal suffixes that are referred to in the preceding sections. The derived verbal nouns and the participial nouns are inflected for case and behave as any other ordinary nominals. A base here is taken to be that part of a word which consists of a stem (see, p. 110 for a definition of this term) plus derivational suffix. It takes all the inflectional suffixes as any other stem takes.

### 2.6.2 Transitive and Causative Bases Derivation

The Tamil verbal stems can be classified in terms of their syntactic relationship in sentences with regards to transitivity and causativity. Traditional grammarians have not fully explained this process. From their grammatical rules and commentaries, it is implied that the second case

in Tamil has the syntactic position in a sentence as the object; and certain verbal stems which they term tanvinay 'self action' can be transformed into what they called piRavinay 'outward action'. Caldwell translated these two terms as 'intransitive' and 'transitive' respectively.<sup>22</sup> Some writers<sup>23</sup> have argued that Caldwell's translation of these two terms is incorrect. But the present writer feels

22 22. Caldwell (1856: 353-4) "All piRa vinei or transitive verbs, are really, as well as formally, transitives, inasmuch as they necessarily govern the accusative, through the transition of their action to some object; whilst tanvinei, or intransitive verbs, are all necessarily, as well as formally, intransitive"

23. See, for example, Kandiah (1968: 221); Velupillai (1966: 229-31). Incidentally, the second author has misrepresented Caldwell in his work. According to him Caldwell seemed to have equated tanvinei and piRavinei with the Sanskrit ātmanē pada and parasmai pada. But in fact Caldwell has clearly stated that "The Dravidian piRavinei and tanvinei or transitive and intransitive verbs differ from the parasmai pada and ātmanē pada of the Sanskrit in this, that instead of each being conjugated differently, they are both conjugated precisely the same".

that Caldwell has rendered a correct translation of the terms as conceived by the native grammarians. The fact that Caldwell was guided by the native grammatical treatises, especially Nannūl, has to be borne in mind. The author of Nannūl made no mention of either term in any of the rules he formulated. His 138th sutra says:

"ceyyen vinayvali vip̄pi tanivarit̄  
ceyvien neev liṇayinii reeval"

'If /vi/- or -/pi/- is added with a verb in the form of /cey/-, then the resulting form will be an imperative in the form of /ceyvi/. If both -/vi/- and -/pi/- are added with the verb, then it is double imperative'.

The following forms are the result of this rule: /cey - vi/- 'cause to do', /naṭa - ppi/- 'cause to walk', /cey - vi - ppi/- 'cause to cause to do'. The term used by the grammarian to refer to these forms is ceyyenneeval. Thus, the European grammarian Beschi rightly places them in a class by themselves and calls them eeval vinay. The difference between the transitive verbs and this class of verbs is crucial. Before we discuss this difference, let us see what the commentator of Nannūl has to say about the terms tanvinay, piRavinay and eeval vinay. The way in which the commentator conceived the last term (eeval vinay) was different from the manner



in which it was to be understood by Beschi. The commentator in his classification has only two divisions:

tanvinay and piRavinay. Whatever bases derived from the former, according to him, are piRayinay. The following are the derivational processes he mentioned:

(81)	<u>tanvinay</u>	<u>piRavinay</u>
(a)	/cey/-	/cey - vi/-
(b)	/naṭa/-	/naṭa - ppi/-
(c)	/poo/-	/poo - kku/-
(d)	/paay/-	/paay - ccu/-
(e)	/uruḷ/-	/uru - ṭṭu/-
(f)	/naṭa/-	/naṭa - ttu/-
(g)	/elump/-	/elupp/-
(h)	/karaynt/-	/karaytt/-

But he did not make clear whether the term piRavinay refers to only those bases derived from column one or to some stems which are inherently piRavinay. Consider for example, the stem /cey/- in 81(a) and /naṭa/- in 81(f). The following sentences employ these stems:

(82) ra:man ve:layac ceyda:n  
           1          2          3

'Rama did the work'  
           1      3      2      2

(83) ku:ṭṭam naṭandadu  
           1          2

'the meeting was held'  
           1      1      2      2



(84) talayvar ku:ttatte naḍattina:r  
           1                  2                  3

'the chairman conducted the meeting'  
       1          1                  3          2          2

Sentences (82) and (84) show structural similarity. It is clear that the verbs in both sentences perform a similar function. But the commentator regards the verbal stem /cey/- as tanvinay and /naḷa - tt/- as piRavinay. However, the structure of the sentences (82 and 84) and the function of verbs show that both verbs have to be regarded as piRavinay. The only difference between them is that the former is inherently a piRavinay while the latter is a derived piRavinay. Caldwell who translates the terms tanvinay and piRavinay as 'intransitive' and 'transitive' respectively does not make the mistake that has been made by the commentator. Instead, he recognizes a class of stems which are inherently transitives and another class of stems which are transitives derived from their corresponding intransitives (Caldwell, 1856: 353-8). Caldwell regarded bases like /ceyvi/-, /naḷappi/- as causals. He says (p. 358): "There is a class of verbs in the Dravidian languages which, though generally included under the head of transitives, claims to be regarded distinctively as causals". We have already seen that the traditional grammarians have used the term piRavinay to include both 'transitives' and 'causatives'.

Therefore Caldwell need not be blamed for translating piRavinay as 'transitives'. But unlike the traditional grammarians, he separated the causatives from transitives. The main weakness in Caldwell's presentation results from the fact that he was not aware of the terms ceyappa[uporu] kunRiya vinay 'the verb without an object' and ceyappa[uporu] kunRaa vinay 'the verb with an object'. If these two terms were available to him, he would have easily translated them as 'intransitive' and 'transitive' respectively.

The three categories intransitive, transitive and causative have to be maintained in a grammar of Tamil. This division is syntactically motivated. Consider the following sentences:

(85) ku:ttam naḍandadu  
           1                  2

'the meeting was held'  
       1      1          2      2

(86) talayvar ku:ttatte naḍattina:r  
           1          2                  3

'the chairman conducted the meeting'  
       1          1          3          2      2

(87) talayvar seyala:ḷaraykkoṇḍu ku:ttatte naḍattuvicca:r  
           1                  2                  3                  4

'the chairman conducted the meeting through the  
       1          1          4          3          3          2      2  
       secretary'  
           2

The syntactic pattern of each sentence differs from the

others. The difference can be summarized informally as follows: the first sentence has one nominal, the second has two nominals and the third has three nominals (see, Lyons, 1968: 350-71) for a proposal to this effect. We will return to this point below). Kandiah has proposed a bipartite division, namely, involitive vs. volitive. But to have three categories of sentences as in (85) to (87), the grammar of Tamil must have two types of source sentences. Consider the sentences in (88) to (100):

- (88) (a) ma:ḍu o:ḍiccuḍu  
           1                  2

'the cow ran'  
       1      1      2

- (b) avan ma:ṭṭe o:ṭṭina:n  
       1          2                  3

'he chased the cow'  
       1          3      2      2

- (89) (a) pa:ḍam naḍandadu  
           1                  2

'the lesson was held'  
       1      1      2      2

- (b) va:tṭiya:r paḍatte naḍattina:r  
       1                  2                  3

'the teacher conducted the lesson'  
       1          1          3          2      2

- (90) (a) maram viḷundadu  
           1                  2

'the tree fell'  
       1      1      2

- (b) na:n maratte viḷuttinan  
       1          2                  3

'I fell the tree'  
1 3 2 2

and compare them with (91) to (93):

(91) (a) avan ve:lɛ seyda:n  
1 2 3

'he did the work'  
1 3 2 2

(b) na:n avanəkkonɖu ve:lɛ seyviccan  
1 2 3 4

'I caused him to do the work'  
1 4 2 4 4 3 3

(92) (a) kandan pe:nayɛ equtta:n  
1 2 3

'Kandan took the pen'  
1 3 2 2

(b) ra:man kandanəkkonɖu pe:nayɛ equppicca:n  
1 2 3 4

'Rama caused Kandan to take the pen'  
1 4 2 4 4 3 3

(93) (a) tambi unmayɛ aRinja:n  
1 2 3

'younger brother knew the truth'  
1 1 3 2 2

(b) anṇan tambikku unmayɛ arivicca:n  
1 2 3 4

'elder brother informed the truths to the  
1 1 4 3 3 2 2

younger brother'  
2 2

The relationship illustrated by the verbs in each of the pairs (88) to (90) would seem to be that of transitivity; while the relationship between the pairs of (91) to (93)

would seem to be that of causativity. In the former, the subject of the intransitive verb is converted into the object of the transitive verb; whereas in the latter, the subject of the transitive verb is converted into either a dative adjunct or an instrumental adjunct of the causative verb. The former operation will be called transitivization, while the latter will be referred to as causativization. This difference in the kind of operation carried out on the source sentence enables us to regard them as two separate categories. We need these two separate operations for valid syntactic reasons. As pointed out earlier (p. 188), a transitivized base needs two nominals in the sentence nuclei, whereas a causative base needs three nominals. The syntactic pattern for the transitive verbs can be effected by a transformation of transitivity; whilst, the syntactic pattern for the causatives can be effected by a transformation of causativity. It is this formal distinction that we make between a transitive verb and a causative verb.

Incidentally, a point pertaining to the entry of lexical stems in the lexicon has to be mentioned here. That is, the question whether the different derived forms of the verbal stems (for example, the transitive /naɭatt/- and the causative /naɭattuvi/- of the stem /naɭa/- ) have to be



entered in the lexicon. This will result in an uneconomical lexicon. If we enter each of these derived forms, then the syntactic, semantic and phonological features of those derived forms also have to be entered in the lexicon.<sup>24</sup> This will not only provide a number of repetitive feature entries, but also reduce the simplicity of the grammar. Thus, we propose that only the source verbal stem (for example, /naɬa/-) has to be entered in the lexicon and the other forms (for example, /naɬa - tt/ and /naɬa - tt - vi/) will be derived by various rules.

With the condition that transitivization takes place only when the stem is intransitive; that the causativization takes place only when the stem is either transitive in the case of inherently transitive stems or has been already transitivized in the case of intransitive forms (but see, 2.6.2.(b), p. 202 for further discussion on this point), let us examine each operation individually.

- 
24. Kandiah (1967) enters even the derived forms in the lexicon. He, for example, enters both kaay and kaayssu which are involitive and volitive forms respectively of the stem /kaay/-, in the lexicon as follows:

	[	kaay	V,	-vol
kaay —		kaayssu	V,	+vol



2.6.2.(a) Transitivization

The most simple way of forming a transitive base in the Ceylon spoken Tamil is by adding one of the following auxiliaries: *-/vay/-* 'keep, make', *-/paṇ/-* 'do, make', *-cey/-* 'do, make', to the infinitival form of any intransitive verbal stem. But the resulting form (i.e. Vst + infin + aux) will be a complex transitive verbal base. Since the complex verbal forms are discussed separately elsewhere (see, 2.8), we give the following examples and do not enter into further discussion on this type of operation:

- |                                     |   |
|-------------------------------------|---|
| (94) <i>/ini/-</i> intr. 'be sweet' | <i>/ini + a + vay/-</i><br>tr. 'make sweet'     |
| <i>/ooṭ/-</i> intr. 'run'           | <i>/ooṭ + a + vay/-</i><br>tr. 'make to run'    |
| <i>/aḷu/-</i> intr. 'cry'           | <i>/aḷu + a + vay/-</i><br>tr. 'make to cry'    |
| <i>/viḷu/-</i> intr. 'fall'         | <i>/viḷu + a + paṇ/-</i><br>tr. 'make to fall'  |
| <i>/aaṭ/-</i> intr. 'dance'         | <i>/aaṭ + a + paṇ/-</i><br>tr. 'make to dance'  |
| <i>/muuṭ/-</i> intr. 'close'        | <i>/muuṭ + a + paṇ/-</i><br>tr. 'make to close' |
| <i>/vaḷar/-</i> intr. 'grow'        | <i>/vaḷar + a + cey/-</i><br>tr. 'make to grow' |

/kuti/- intr. 'jump'

/kuti + a + cey/-

tr. 'make to jump'

/aray/- intr. 'grind'

/aray + a + cey/-

tr. 'make to grind'

The first operation by which simple transitive bases are formed is by adding a single [+obs] suffix to all the verbal stems that end in [+obs]. The decision to have this transitive suffix as a phonological feature is well motivated. Consider the following examples (in each pair (a) gives the underlying and phonetic forms of the intransitive stem and (b) gives the underlying and phonetic forms of the transitive base):

- (95) (a) /kuRuk/- → [kuRux] 'become short'  
 (b) /kuRuk + k/ → [kuRukk] 'shorten'
- (96) (a) /ooɭ/- → [o:ɖ] 'run'  
 (b) /ooɭ + ɭ/ → [o:ɭɭ] 'drive'
- (97) (a) /urut/- → [urud] 'drop' (intr.)  
 (b) /urut + t/ → [urutt] 'drop' (tr.)
- (98) (a) /tiruNp/- → [tirumb] 'turn' (intr.)  
 (b) /tiruNp + p/ → [tirupp] 'turn' (tr.)

The formation of transitive bases in (95) to (98) shows that the transitive suffixes /k/, /ɭ/, /t/, /p/ are added when the intransitive stems also end in those obstruents consonants respectively. Thus, as a simplicity measure, instead of having these suffixes individually, a generalization is

made. That is, the suffix shall be [+obs] and it is added to the verbal stems which have the endings [+obs]. A redun-

```
+obs
αret
βfnt
γmed
δbck
```

dancy rule (see, R 14) will specify that if two obstruents occur together (within a morpheme or across morpheme boundary), then both have the same point of articulation. Thus, a stem ending in velar obstruent will have a velar obstruent as the transitivizing suffix and so on.

The second type of transitive operation is similar to that of the first type, except that in this case the suffix shall be [+obs][+obs] and it will be added to /a/, /u/, and /y/ ending intransitive stems and to some /r/ and /ɿ/ ending stems. Consider the following examples:

- (99) (a) /naɬa/- intr. → [naɬa] 'held, walk'  
           /naɬa + tt/ tr. → [naɬatt] 'conduct,  
   walk'
- (b) /mita/- intr. → [mida] 'float'  
           /mita + tt/- tr. → [midatt] 'float'
- (c) /iru/- intr. → [iru] 'sit'  
           /iru + tt/- tr. → [irutt] 'sit'
- (d) /paay/- intr. → [pa:y] 'flow'  
           /paay + cc/- tr. → [pa:cc] 'water'
- (e) /uyar/- intr. → [uyar] 'rise'  
           /uyar + tt/- tr. → [uyatt] 'raise'

- (f) /cuRu/ - intr. → [suRu] 'curl, roll'  
 /cuRu + t/ - tr. → [suRu<sup>u</sup>t] 'curl, roll'

The underlying forms of the transitives in (99) will have [+obs][+obs] as the transitivizing suffix. The redundancy rules R 16, R 17 and R 19 will convert this into -/tt/- or -/cc/- or -/t/ - in the appropriate environments.

The third type of transitive is formed by adding the suffix -/vi/- to the corresponding intransitive verbal stem. The following can be cited as examples:

- (100) (a) /alu/ - intr. → [alu] 'cry'  
           /alu + vi/ - tr. → [aluvi] 'make cry'  
 (b) /kani/ - intr. → [kani] 'ripen'  
           /kani + vi/ - tr. → [kanivi] 'ripen'  
 (c) /kuNt/ - intr. → [kund] 'sit'  
           /kuNt + vi/ - tr. → [kunduvi] 'sit'

The fourth type of transitive is formed by adding the suffix -/ppi/- to the corresponding intransitive stem. The following are examples:

- (101) (a) /paRa/ - intr. → [paRa] 'fly'  
           /paRa + ppi/ - tr. → [paRappi] 'fly'  
 (b) /civa/ - intr. → [siva] 'become red'  
           /civa + ppi/ - tr. → [sivappi] 'become red'  
 (c) /uRay/ - intr. → [uRay] 'be hot'  
           /uRay + ppi/ - tr. → [uRayppi] 'make hot'

A common feature in the preceding types of transitive formation is that in each case there is a change in the structure of the intransitive verbal stems. But there are certain verbal stems which are transformed to express transitivity not by their stem alternance but by taking either the Class II tense morphemes or the [+hum] PNG markers. These two types can said to be the fifth and the sixth kind respectively.

The stems that become subject to the fifth kind of operation are all belong to Class I. These stems, when they take the Class I tense morphemes, express intransitivity. If they take Class II tense morphemes, then they express transitivity. The verbal stems remain without any change in both forms. Consider the following examples:

- (102) (a) /kiḷi + [+nas][+obs] + utu/ →  
[kiḷipjudu] intr. 'it became torn'  
/kiḷi + [+obs][+obs] + an/ →  
[kiḷiccan] tr. 'I tore'  
(b) /aray + [+nas][+obs] + utu/ →  
[arapjudu] intr. 'it became  
grinded'  
/aray + [+obs][+obs] + utu/ →  
[araccudu] tr. 'it grinded'  
(c) /kalay + utu/ → [kalayudu] intr.  
'it is dispersing'

- /kalay + kkiR + an/ → [kalaykkiRan]  
tr. 'I am dispersing'
- (d) /ceer + iR + an/ → [se:rran] tr.  
intr. 'I am joining'
- /ceer + kkiR + an/ → [se:kkiRan]  
tr. 'I am joining'
- (e) /nuur + utu/ → [nu:rudu]  
intr. 'it switches off'
- /nuur + kkiR + an/ → [nu:kkiRan]  
tr. 'I am switching off'
- (f) /avi] + [+nas][+obs] + utu/ → [aviŋdu]  
intr. 'it became loose'
- /avi] + [+obs][+obs] + an/ → [avi]an]  
tr. 'I untied'
- (g) /taa] + utu/ → [ta:]udu]  
intr. 'it gets buried'
- /taa] + kkiR + an/ → [ta:kkiRan]  
tr. 'I am burying'

The verbal forms belonging to the sixth type of operation differ from all the preceding ones. The difference is this: in the preceding operations, either there is an alternation in the intransitive stem or different tense morphemes are added to the stems. Moreover, these stems mostly take [-hum] PNG markers in the intransitive forms and [+hum] in their transitive forms. But a small number of stems



take either [-hum] or [+hum] PNG markers in their intransitive forms and the same prevails in their transitive forms. In the verbal stems belonging to the sixth type of operation, there is neither an alternance in the verbal stems nor a change in the tense morphemes. The intransitive forms take only the [-hum] PNG marker and the transitive forms take only the [+hum] PNG marker. Thus, these verbal forms express transitivity by their PNG markers. While converting the intransitive verb form into a transitive one, a difference in meaning occurs in certain forms. This feature has to be made clear in the lexicon. The following will suffice as examples:

(103) (a) /maŋa + [+nas][+obs] + utu/ →

[maŋandudu] intr.

'it smelt'

/maŋa + [+nas][+obs] + an/ →

[maŋandan] tr.

'I smelt'

(b) /uri + utu/ → [uriyudu] intr.

'undress'

/uri + iR + an/ → [uriyiRan] tr.

'I am undressing'

(c) /velu + utu/ → [velukkudu]  
intr. 'it becomes white'

/velu + kkiR + an/ → [velukkiRan]

tr. 'wash'

Let us now examine how these six types of transitive operations can be effected in the grammar. We propose to attach a feature 'transitive' (marked as [+tr] ) to the verbal stems in the lexicon and the type of operation by which a particular intransitive stem is converted into a transitive one is indicated by a numeral attached with the feature [+tr]. Suppose the verbal stem /maŋa/- is entered in the lexicon. It has been shown in (103) that this stem belongs to the sixth type of operation. This stem, accordingly will be attached with the feature [+tr<sub>6</sub>]. Thus,, every intransitive stem in the lexicon will be marked as to which type of operation it belongs to. The feature that is attached will be realized as follows by the application of the following phonological matrix insertion rules:

PMIR 18:

$$[+tr\ 1] \rightarrow [+obs] \ / \ \begin{bmatrix} +Vst \\ +tr\ 1 \end{bmatrix} + [-]$$

PMIR 19:

$$[+tr\ 2] \rightarrow [+obs][+obs] \ / \ \begin{bmatrix} +Vst \\ +tr\ 2 \end{bmatrix} + [-]$$

PMIR 20:

$$[+tr\ 3] \rightarrow vi \ / \ \begin{bmatrix} +Vst \\ +tr\ 3 \end{bmatrix} + [-]$$

PMIR 21:

$$[+tr\ 4] \rightarrow ppi \ / \ \begin{bmatrix} +Vst \\ +tr\ 4 \end{bmatrix} + [-]$$

PMIR 22:

+tr 5
+Vst I

→

Vst II

PMIR 23:

[+tr 6]

→

+PNG
+hum

/

+Vst
+tr 6

+ [+tns] + [-]

### 2.6.2.(b) Causativization

Causative bases can be divided into two types. One type of base is formed by adding the causative suffix *-/vi/* to the transitivized bases. The other type of bases is formed by adding the suffixes *-/vi/* or *-/ppi/* straight to the underlying verbal stems. One main factor of the causative bases is that they always take Class II tense morphemes irrespective of whether their source stems (i.e. the underlying forms) belong to Class I or Class II.

The first type of causative bases are formed when the transitive operations one and two ([+tr 1] and [+tr 2]) are completed. The following examples show the process of their derivation. The first line gives the underlying intransitive stem, the second provides its corresponding transitive base; and the final line derives the causative bases:

- (104) (a) /ooɭ/- → [o:q] intr. 'run'  
 /ooɭ + ɭ/- → [o:ɭɭ] tr 2 'drive'  
 /ooɭ + ɭ + vi/- → [o:ɭɭuvi] 'cause to  
 drive'  
 (b) /naɭa/- → [naqɑ] intr. 'walk'  
 /naɭa + [+obs][+obs]/ → [naqɑtt] tr 2  
 'walk'  
 /naɭa + [+obs][+obs] + vi/- → [naqɑttuvi]  
 'cause to walk'  
 (c) /tiruNp/- → [tirumb] intr. 'turn'  
 /tiruNp + [+obs]/- → [tirupp] tr 1 'turn'  
 /tiruNp + [+obs] + vi/- → [tiruppuvi]  
 'cause to turn'  
 (d) /kaay/- → [ka:y] intr. 'dry'  
 /kaay + [+obs][+obs]/- → [ka:cc] tr 2  
 'dry'  
 /kaay + [+obs][+obs] + vi/- → [ka:ccuvi]  
 'cause to dry'  
 (e) /uyar/- → [uyar] intr. 'rise'  
 /uyar + [+obs][+obs]/- → [uyatt] tr 2  
 'raise'  
 /uyar + [+obs][+obs] + vi/- → [uyattuvi]  
 'cause to raise'

The second type of causative is formed by adding either *-/vi/-* or *-/ppi/-* to the stem. The stems that are affected by the second type of causativization are mostly the inherently transitive stems and those belonging to [+tr 5] and [+tr 6]. In the case of the first type of causative formation, there is a change in the structural pattern of the stem before the causative suffix is added. This means, the features [+tr 1] and [+tr 2] are obligatorily realized as various transitive suffixes and the causative formation takes place only after the application of the two rules PMIR 18 and PMIR 19. But in the case of the second type of causative formation, [+tr 5] and [+tr 6] do not bring any structural change in the underlying stems. In this situation, is it correct to say that transitivization is optional in these cases (see, p. 191, where a statement to the effect that the causativization takes place only after the operation of transitivization, has been made). As far as syntax is concerned, we cannot make a statement of this sort, because the causative transformation takes place only when the source sentence is in transitive form. But for phonological purposes, the transitive operations [+tr 5] and [+tr 6] can be considered as phonologically null. Thus, in the lexicon, those stems which are subject to the process of causativization will be marked with the feature [+caus]. The stems that are subject to the first type of

causative formation will be marked as [+caus 1] and the others with the feature [+caus 2]. The following examples can be given for the second type of causative forms:

- (105) (a) /avi/ - → [avi] intr. 'untie'  
 (b) /avi/ +ppi/ → [avippi] caus. 'untie'  
 (b) /pi/i/ → [pi] tr. 'catch'  
 /pi/ +ppi/ → [pippi] caus. 'catch'  
 (c) /camay/ - → [cam] tr. 'cook'  
 /camay/ +ppi/ → [camayppi] caus. 'cook'

The following rules introduce the causative suffixes:

PMIR 24:

$$[+caus\ 1] \rightarrow vi / \left[ \begin{array}{c} +Vst \\ +caus\ 1 \end{array} \right] + \left\{ \begin{array}{c} [+tr\ 1] \\ [+tr\ 2] \end{array} \right\} + [-]$$

PMIR 25:

$$[+caus\ 2] \rightarrow ppi / \left[ \begin{array}{c} +Vst \\ +caus\ 2 \\ \left\{ \begin{array}{c} [-cns] \\ \left[ \begin{array}{c} +cns \\ \left\{ \begin{array}{c} [+lat] \\ [+ret] \\ [-lat] \\ [-ret] \\ [+app] \\ [-fnt] \end{array} \right\} \end{array} \right\} \end{array} \right] + [-]$$



PMIR 25: (continued)

→	vi	/	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> +Vst  +caus 2   +cns  <div style="border: 1px solid black; padding: 2px; display: inline-block;"> [+obs]  [+nas] </div>  <div style="border: 1px solid black; padding: 2px; display: inline-block;"> +lat  -ret </div>  <div style="border: 1px solid black; padding: 2px; display: inline-block;"> -lat  +ret </div>  <div style="border: 1px solid black; padding: 2px; display: inline-block;"> +app  +fnt </div> </div>	+ [—]
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For the correct realization of the transitive and causative verbal forms PMIR 18 to PMIR 25 have to be ordered before PMIR 1 to PMIR 17.

### 2.6.3 Verbal Nouns

Tamil grammarians have used the term tolit peyar 'nouns of operation or employment', in their grammatical treatises. Neither the authors of these grammars nor the commentators of these works have explained this term well. Caldwell (1856: 542) regards this term as referring to a class of forms which are formed from the verbal root and express the act, not the abstract idea, of the verb to which they belong

to. He further says that "the verbal nouns are carefully to be distinguished from verbal derivatives or substantives derived from verbs. The latter, though derived from verbs, are used merely as nouns; whereas the verbal noun, properly so called (like the participial noun), is constructed as a verb. As a noun, it can be used as the nominative of a subsequent verb; and as a verb it may be preceded by a nominative of its own, and may govern a noun in case". He complains that in several Dravidian grammars written by Europeans this distinction has not been discussed; and Tamil derivatives like naṭay or naṭappu 'walk' have been classed with verbal nouns like naṭakkay, naṭakkutal, and naṭakkal, 'walking'. His main distinction between these two classes is that the former are simply substantives; and that adjectives, not adverbs, must be used to qualify them; whereas the latter are true verbal nouns and are qualified by adverbs. His distinction seems to be reasonable and applicable to written Tamil. But it is doubtful whether the Tamil grammarians meant the latter type of forms (i.e. Caldwell's true verbal nouns) by the term tolit peyar. From their examples (see, Nannūl, p. 110), it is reasonable to suggest that the term tolit peyar refers to all the nominal forms that are derived from verbal stems by adding suffixes. The term verbal noun used in

this work refers to all the nominal forms that are derived from verbal stems by adding verbal noun suffixes. But a class of nominal forms derived from verbal stems by adding the demonstrative pronouns to the verbal stem plus tense morpheme form are referred to as vinayaalanayum peyar.

This kind of nominal form can be referred to as a participial noun. The main difference between the verbal nouns and the participial nouns is that the former do not express tense ; whereas the latter express time as any other positive finite indicative verb. Consider the following examples:

- (106) (a) /paṭi + ppu/ → [paṭippu]  
'learning'
- (b) /eri + vu/ → [erivu]  
'burning'
- (c) /paṭi + kkiR + avan/ → [paṭikkiRavan]  
'he who studies'
- (d) /eri + [+nas][+obs] + atu/ → [eripjadu]  
'that which burnt'

The first two examples are verbal nouns and the last two are participial nouns. The former express some abstract idea which resulted from the act of the verb. Further, they cannot be conjugated as \* [paṭicc] or \* [ericc] to yield verbal nouns with the stem plus past tense morpheme and the verbal noun suffix. The last two express present

and past tenses respectively. These two forms can be conjugated regularly as any other verb. For example 106(c) which is marked for the present tense can be converted into:

(107) /paṭi + [+obs][+obs] + avan/ → [paḍiccavan]  
'he who studied'

which is marked for the past tense; while 106(d) can be converted to:

(108) /eri + iR + atu/ → [eriyiRadu]  
'that which is burning'

which is marked for the present tense.

Apart from this morphological difference, the verbal nouns differ from participial nouns in respect of their position in syntactic structures. The verbal nouns behave much as nouns and if they take an adjunct, then that adjunct can only be an adjectival form; whereas if the participial nouns take an adjunct, then it can only be an adverbial modifier. Consider for example, the following sentences:

(109) nalla    paḍippup    paḍicca:n  
          1                2                3  
'he learnt a good lesson'  
          3            3            1    1            2

(110) nalla:p    paḍiccavan    peyil    viṭṭiṭṭa:n  
          1                2                3                4  
'he who studied well failed (the examination)'  
          2    2            2            1            3 and 4

In (109) the verbal noun [paḍippu] takes the adjectival adjunct [nalla]; whereas in (110) the participial noun [paḍiccavan] takes the adverbial adjunct [nalla:]. Thus, the adjectival and adverbial adjuncts are in complementary distribution to verbal nouns and participial nouns.

On a semantic basis, the Tamil verbal nouns can be divided into four groups, namely: (a) action nominals, (b) abstractive nominals, (c) agentive nominals, and (d) instrumental nominals.

(a) action nominals

Most of the Tamil verbal nouns are action nominals. The majority of the nominals derived from the verbal stems by adding the suffixes -/ppu/, -/al/ are of this nature. Compare the verbal nouns formed from the stem /cuupp/- 'suck':

(111) /cuupp + al/ → [su:ppal] 'sucking'

(112) /cuupp + i/ → [su:ppi] 'soother' or  
'a person who sucks'

In the case of the first nominal, it refers to an action, while the second refers either to an agent who performs the action or to the instrument that is used for the action referred to by the stem. The following can be cited as examples for action nominals:

(113) (a) /aḷa + ppu/ → [aḷappu] 'measuring'

- (b) /kuti + ppu/ → [kudippu] 'jumping'  
 (c) /piḷi + al/ → [piḷiyal] 'squeezing'  
 (d) /irum + al/ → [irumal] 'cough'  
 (e) /eeR + al/ → [e:Ral] 'climbing'  
 (f) /camay + ppu/ → [samayppu] 'cooking'  
 (g) /vaḷar + ppu/ → [vaḷappu] 'bringing up'

Some nominal forms express the notion of the result of an action. Consider for example the verbal stem /pori/- 'fry'. The verbal noun derived from this stem is:

- (114) /pori + al/ → [poriyal] 'frying' or  
 'thing that is fried'

This noun on the first instance can be considered as an action nominal when it refers to the action of 'frying'.

- (115) avanra poriyal muRe sariyillē  
           1          2          3          4  
 'his way of frying is not good'  
           1      3      3      2      4      4      4

In (115) the verbal noun refers to an action. But in (116):

- (116) na:n mi:n poriyal sa:ppiḷḷan  
           1          2          3          4  
 'I ate fried fish'  
           1      4      3      2

it refers to a thing that resulted by the action of the verb /pori/-. Traditional grammarians made this distinction clearly in their works. They call the verbal noun in (115) tolit peyar and that in (116) tolilaaku peyar



'noun resulted from an action'. This distinction is intuitively felt by all native speakers of Ceylon Tamil.

(b) abstractive nominals

Some nominal forms derived from verbal stems express semantically the notion of 'abstract quality'. Most of these nominals are formed by adding any one of the following suffixes: *-/vu/*, *-/vay/*, *-/may/*, */am/*, */bs/*, */[+obs]am/* to the verbal stem. The following examples will illustrate this fact; the first column gives the underlying forms, the second provides a gloss, the third presents the derived nominal forms and the final column gives a gloss:

- (117) */aRi + vu/* 'know' → [*aRivu*] 'knowledge'  
*/piri + vu/* 'divide' → [*pirivu*] 'division'  
*/cari + vu/* 'slant' → [*sarivu*] 'slope'  
*/veer + vay/* 'perspire' → [*ve:rvæ*] 'perspiration'  
*/paar + vay/* 'see' → [*pa:rvæ*] 'sight'  
*/poRu + may/* 'bear' → [*poRumæ*] 'patience'  
*/vaRu + may/* 'dry or fry' → [*poRumæ*] 'poverty'  
~~*/niRuutt + am/*~~ 'stop' → [*niRuuttam*] 'stoppage'  
*/poruNt + [+obs]am/* 'be appropriate' → [*poruttam*]  
 'appropriateness'

(c) agentive nominals

Most of the agentive nominals are formed by adding the suffix *-/i/* to the verbal stems. These nominals in general

express the agent who performs the action of the verb. Some of the /i/ ending verbal stems do not need the-/i/ suffix, because the verbal stems themselves form the verbal nouns without any addition of suffix. Consider for example, the verbal stem /avataani/- 'observe'. The verbal noun derived from this stem is [avada:ni] 'observer'. This can be derived from the underlying form as /avataani + i/ where the suffix /i/ finally gets deleted. But we have allowed such stems to express distinction by a purely phonological null rather than having a suffix in effect stated as /i/ and then deleting it. In the lexicon, those stems from which the verbal nouns are derived by adding suffixes will be marked with features [Vn 1], [Vn 2] etc. Each feature will be realized as a suffix. But those stems which become verbal nouns without any suffixes will be marked with the feature [+Vn]. This feature will be realized as phonologically null; but it will indicate that the particular stem can become a verbal noun. The following are the examples for agentive nominals:

- (118) /avataani/    'observe'    →    [avada:ni]    'observer'  
       /ciNkaari/    'decorate'    →    [singa:ri]    'fashion  
    conscious woman'  
       /paavi/        'use'        →        [pa:vi]        'innocent person'  
       /alaNp + i/    'blabber'    →    [alambi]    'blabberer'



according to the types of suffixes taken by the verbal stems to form verbal nouns. Each suffix will be represented by a morphological feature in the lexicon. If for example, the verbal stem /a]a/- 'measure' can take the suffixes -/ppu/ and -/vay/ to form the verbal nouns [a]appu] and [a]avay] respectively, then, it will be marked in the lexicon with the features [+Vn 8] and [+Vn 9]. The phonological matrix insertion rules will insert the phonological forms (i.e. -/ppu/ and -/vay/) of these features into the underlying phonological representation (see, for example, PMIR 33 and PMIR 34).

The following rules introduce the suffixes that are added to the verbal stems to derive verbal nouns. Among the following rules, in PMIR 27, PMIR 28, PMIR 30, PMIR 31, PMIR 37, a phonological feature [+obs] or [+obs][+obs] is used. The rules that determine the choice of obstruents are the redundancy rules R 14, R 16, R 17 and R 19. When these R-rules are applied the phonological features [+obs] and [+obs][+obs] will be realized into various obstruents in the phonetic level. This will become clear when we go through the examples that are given after each of the following rules:

PMIR 26:

[+Vn 1]	→	a1	/	$\begin{bmatrix} +Vst \\ +Vn\ 1 \end{bmatrix}$	+	[—]
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The following are the examples for the derivation of verbal nouns from stems by adding the suffix *-/al/*:

- (121) /pori + al/ → [poriyal] 'frying'  
 /camay + al/ → [samayal] 'cooking'  
 /uuR + al/ → [u:Ral] 'dampness'

PMIR 27:

$$[+Vn\ 2] \rightarrow [+obs]al \ / \ \boxed{\begin{matrix} +Vst \\ +Vn\ 2 \end{matrix}} + [-]$$

The following are the examples for the formation of verbal nouns by adding the suffix *-/[+obs]al/* to the verbal stems:

- (122) /kuuṭ + [+obs]al/ → [ku:ṭal] 'addition'  
 /peruk + [+obs]al/ → [perukkal] 'multiplication'  
 /tiruNt + [+obs]al/ → [tiruttal] 'correction'

PMIR 28:

$$[+Vn\ 3] \rightarrow [+obs][+obs]al \ / \ \boxed{\begin{matrix} +Vst \\ +Vn\ 3 \end{matrix}} + [-]$$

The following are the examples:

- (123) /kaay + [+obs][+obs]al/ → [ka:ccal] 'fever'

/tooy + [+obs][+obs]al/ → [to:ccal]  
 'washing up'  
 /a]a + [+obs][+obs]al/ → [a]attal]  
 'measuring'

PMIR 29:

[+Vn 4] → u /  $\begin{bmatrix} +Vst \\ +Vn\ 4 \end{bmatrix}$  + [—]

The verbal nouns that are formed by adding the suffix -/u/ are:

(124) /ala]l + u/ → [ala]tu] 'jabbering'  
 /ulaattu+ u/ → [ula:ttu] 'stroll'  
 /cikk + u/ → [sikku] 'entanglement'

PMIR 30:

[+Vn 5] → [+obs]u /  $\begin{bmatrix} +Vst \\ +Vn\ 5 \end{bmatrix}$  + [—]

The following are the examples for the verbal nouns that are formed by adding the suffix / [+obs]u/ to the verbal stems:

(125) /peec + [+obs]u/ → [pe:ccu] 'speech'  
 /e]ut + [+obs]u/ → [e]uttu] 'writing'  
 /mu]uk + [+obs]u/ → [mu]ukku] 'bath'





PMIR 33:

$$[+Vn\ 8] \rightarrow \text{ppu} / \begin{bmatrix} +Vst \\ +Vn\ 8 \end{bmatrix} + [-]$$

The following are examples for verbal nouns formed by adding the suffix *-/ppu/* to the verbal stems:

(128) */maNti + ppu/* → [mandippu] 'indigestion'  
*/paavi + ppu/* → [pa:vippu] 'use'  
*/paṭay + ppu/* → [paṭayppu] 'serving'

PMIR 34:

$$[+Vn\ 9] \rightarrow \text{vay} / \begin{bmatrix} +Vst \\ +Vn\ 9 \end{bmatrix} + [-]$$

The following can be cited as examples for verbal nouns that are formed by adding the suffix *-/vay/* to the verbal stems:

(129) */aRu + vay/* → [aRuvε] 'surgery'  
*/aḷa + vay/* → [aḷavε] 'measurement'  
*/paar + vay/* → [pa:rvε] 'sight'

PMIR 35:

$$[+Vn\ 10] \rightarrow \text{i} / \begin{bmatrix} +Vst \\ +Vn\ 10 \end{bmatrix} + [-]$$

Some verbal nouns are formed by adding the suffix *-/i/* to the verbal stems. The following are examples:

- (130) /muuṭ + i/ → [mu:qi] 'lid'  
 /etir + i/ → [ediri] 'opponent'  
 /utav + i/ → [udavi] 'help'

PMIR 36:

$$[+Vn\ 11] \rightarrow am / \begin{bmatrix} +Vst \\ +Vn\ 11 \end{bmatrix} + [—]$$

The following are examples for verbal nouns formed by adding the suffix -/am/ to the verbal stems:

- (131) /uyar + am/ → [uyaram] 'height'  
 /pati + am/ → [padiyam] 'nursery'  
 /vaḷay + am/ → [vaḷayam] 'any ring-shape  
 object'

PMIR 37:

$$[+Vn\ 12] \rightarrow [+obs]am / \begin{bmatrix} +Vst \\ +Vn\ 12 \end{bmatrix} + [—]$$

The following examples show how the verbal nouns are formed by adding the suffix -/[+obs]am/ to the verbal stems:

- (132) /mayaṅk + [+obs]am/ → [mayakkam]  
 'giddiness'  
 /kuuṭ + [+obs]am/ → [ku:ṭam]  
 'meeting'  
 /iraṅk + [+obs]am/ → [irakkam] 'kindness'

PMIR 38:

$$[+Vn\ 13] \rightarrow ppam / \left[ \begin{array}{c} +Vst \\ +Vn\ 13 \end{array} \right] + [—]$$

The following are examples for verbal nouns formed by adding the suffix -/ppam/ to the verbal stems:

- (133) /peru + ppam/ → [peruppam] 'large'  
 /taaḷ + ppam/ → [ta:ppam] 'depth'  
 /tuḷay + ppam/ → [tuḷayppam] 'sweeping  
 brush'

PMIR 39:

$$[+Vn\ 14] \rightarrow may / \left[ \begin{array}{c} +Vst \\ +Vn\ 14 \end{array} \right] + [—]$$

The following are examples for verbal nouns formed by adding the suffix -/may/ to the verbal stems:

- (134) /poRu + may/ → [poRumə] 'patience'  
 /peru + may/ → [perumə] 'pride'  
 /vaRu + may/ → [vaRumə] 'poverty'

As we noted earlier with reference to agentive nominals (see, p. 211), there is a few number of verbal stems which are used as nominals without any suffixation. These stems are simply marked as [+Vn] in the lexicon. The following are examples for such verbal nouns:

- (135) /aḷi/ 'beat' → [aḷi] 'blow'  
 /kuRay/- 'shorten' → [kuRə] 'short-coming'

#### 2.6.4 Participial Nouns

A participial noun is formed by adding any one of the demonstrative pronouns to a form that consists of a verbal stem plus past or present tense morpheme. The difference between the verbal nouns and the participial nouns has already been stated (see, 2.6.3). The demonstrative pronouns that are found in the Ceylon spoken Tamil are:

(136)	[+mas, -pl, +hum]	: /avan/
	[+mas, +pl, +hum]	: /avaNka/
	[+mas, -pl, +hon, +hum]	: /avar/
	[+fem, -pl, +hum]	: /ava/
	[+fem, +pl, +hum]	: /ava[uka/
	[+fem, -pl, +hon, +hum]	: /avaa/
	[+mas, +fem, +pl, +hum]	: /avaya/
	[-pl, -hum]	: /atu/
	[+pl, -hum]	: /atuka/

The following can be given as examples of participial nouns in the dialect under investigation:

(137)	/vi[u + [+nas][+obs] + avan/	→	
	[vi]undavan]		'he who fell down'
	/a[i + kkiR + ava/	→	[aḍikkiRava]
			'she who beats'
	/oo[ + in + avaya/	→	[o:ḍinavaya]
			'those who ran'
	/iru + kkiR + atu/	→	[irukkiRadu]
			'that which is sitting'

/paṭi + [+obs][+obs] + avaNkaḷ/ →  
 [paḍiccavaṅgaḷ] 'those (mas.) who  
 studied'

The following rule can be considered as introducing the  
 participial noun suffixes in the appropriate environments:

PMIR 40:

(+part n]	→	avan <sub>1</sub>	/ [+Vst] +	<div style="border: 1px solid black; padding: 5px; display: inline-block;">       +tns        [+pst]        -pst        +prt     </div>	+	<div style="border: 1px solid black; padding: 5px; display: inline-block;">       +        +dem        +mas        -pl        +hum     </div>	1
		avaNkaḷ <sub>2</sub>				<div style="border: 1px solid black; padding: 5px; display: inline-block;">       +dem        +mas        +pl        +hum     </div>	2
		avar <sub>3</sub>				<div style="border: 1px solid black; padding: 5px; display: inline-block;">       +dem        +mas        -pl        +hon        +hum     </div>	3
		avaḷ <sub>4</sub>				<div style="border: 1px solid black; padding: 5px; display: inline-block;">       +dem        +fem        -pl        +hum     </div>	4
		avaḷukaḷ <sub>5</sub>				<div style="border: 1px solid black; padding: 5px; display: inline-block;">       +dem        +fem        +pl        +hum     </div>	5
		avaa <sub>6</sub>					
		avayaḷ <sub>7</sub>					
		atu <sub>8</sub>					
		atukaḷ <sub>9</sub>					



PMIR 40: (continued)

→ avan <sub>1</sub>	/ [+Vst] +	$\left[ \begin{array}{c} +tns \\ [+pst] \\ -pst \\ +prt \end{array} \right]$	+	$\left[ \begin{array}{c} - \\ +dem \\ +fem \\ -pl \\ +hon \\ +hum \end{array} \right]$	6
avaNka <sub>2</sub>					
avar <sub>3</sub>					
ava <sub>4</sub>					
ava <sub>luka</sub> <sub>5</sub>					
avaa <sub>6</sub>				$\left[ \begin{array}{c} - \\ +dem \\ +mas \\ +fem \\ +pl \\ +hum \end{array} \right]$	7
avaya <sub>7</sub>					
atu <sub>8</sub>				$\left[ \begin{array}{c} - \\ +dem \\ -pl \\ -hum \end{array} \right]$	8
atuka <sub>9</sub>				$\left[ \begin{array}{c} - \\ +dem \\ +pl \\ +hum \end{array} \right]$	9

The numerals that are found on either side of the environment bar indicate the demonstrative pronouns and their corresponding feature matrices.

## 2.7 Constituent Structures of Verb Forms

It was pointed out in 1.1 (p. 41), that the constituent structure on which the phonological component operates is the so-called surface structure. It is assumed that the

surface constituent structure of Tamil verbs can be described by the following rules:

$$\text{I. Verb} \rightarrow \text{Vst} \left( \left( \left( \begin{array}{c} +\text{tns} \\ +\text{neg} \end{array} \right) + \text{suf} \right) \left( \begin{array}{c} +\text{inter} \\ +\text{report} \end{array} \right) \right) (+\text{quot})$$

$$\text{II. Vst} \rightarrow \left\{ \begin{array}{l} \text{Class I} \\ \text{Class II} \end{array} \right\} (+\text{tr}) (+\text{caus})$$

$$\text{III. } +\text{tr} \rightarrow \left\{ \begin{array}{l} \text{tr 1} \\ \text{tr 2} \\ \text{tr 3} \\ \text{tr 4} \\ \text{tr 5} \\ \text{tr 6} \end{array} \right\}$$

$$\text{IV. } +\text{caus} \rightarrow \left\{ \begin{array}{l} \text{caus 1} \\ \text{caus 2} \end{array} \right\}$$

$$\text{V. } +\text{tns} \rightarrow \left\{ \begin{array}{l} [+pst] \\ \boxed{\begin{array}{l} -pst \\ +prt \end{array}} \\ \boxed{\begin{array}{l} -pst \\ -prt \end{array}} \end{array} \right\}$$

$$\text{VI. } +\text{neg} \rightarrow \text{aa}$$

$$\text{VII. } +\text{suf} \rightarrow \left\{ \begin{array}{l} +\text{neg end} \\ +\text{pos end} \end{array} \right\}$$

$$\text{VIII. } +\text{neg end} \rightarrow \left\{ \begin{array}{l} +\text{neg PNG} \\ +\text{neg imp} \\ +\text{neg part} \end{array} \right\}$$

- IX.      +neg part      →       $\left\{ \begin{array}{l} +neg \text{ adv part} \\ +neg \text{ adj part} \\ +neg \text{ cond} \end{array} \right\}$
- X.        +pos end        →       $\left\{ \begin{array}{l} -neg \text{ PNG} \\ -neg \text{ imp} \\ -neg \text{ part} \\ -neg \text{ infin} \\ -neg \text{ Vn} \\ -neg \text{ part n} \end{array} \right\}$
- XI.      -neg part      →       $\left\{ \begin{array}{l} -neg \text{ adv part} \\ -neg \text{ adj part} \\ -neg \text{ cond} \end{array} \right\}$
- XII.     +inter        →       $\left\{ \begin{array}{l} ee \\ oo \end{array} \right\}$
- XIII.    +report        →      aam
- XIV.     +quot        →      eNu

Let us first explain the motivation for the brackets in rule I. Some of the Tamil verb stems (whether simple or derived) can form a verbal form (i.e. imperative) without any additions to them. Thus, all items following Vst in rule I have been bracketed in order to imply that those bracketed items are optional. Among those bracketed items, further brackets have been introduced in order to

give the order in which they would appear and also to point out the optional items. Among these, a suf can be added with a Vst without any other items. But if a tns or neg is added to a Vst, then a suf is an obligatory item after it (i.e. tns or neg). Another probable structure is that a Vst can be followed by a suf and an inter or a report. A Vst can be followed by a tns or a neg, a suf and an inter or report. A quot verbal form can be formed either by adding a [+quot] suffix to the verbal stem (i.e. Vst) or by adding the above suffix to the following form:  $Vst + \left( \left( \left( \begin{matrix} +tns \\ +neg \end{matrix} \right) +suf \right) \left( \begin{matrix} +inter \\ +report \end{matrix} \right) \right) [-]$ . The items tns and neg are given within braces in order to show that they are mutually exclusives. It was mentioned in 2.3 (p. 121) that the negative verbal forms do not take any tense markers. Since tns and neg are in complementary distribution in verbal forms, they are mutually exclusives. Hence, they are grouped within braces. Since we have not stated any phonological matrix insertion rules that introduce the s phonological forms of inter, report and quot, let us examine them below.

An interrogative verbal form is formed by adding the suffixes -/aa/ or -/oo/ as indicated in the previous paragraph. Between the two interrogative suffixes, -/oo/, apart from its normal semantic notion of 'interrogation',

expresses a special notion of 'doubt' in certain sentences. Consider for example the following sentence:

- (138) ni: paḍikkiRiyo: viḷaya:ḍiRiyo:  
 1 2 3  
 'are you studying or playing '  
 2,3 1 2 2,3 3

In sentences like (138) the interrogative suffix *-/aa/* is never used in Ceylon spoken Tamil.

Let us now examine report and quot. The feature [+quot] may be needed within the syntactic structure of a Tamil sentence. But here, it is used to express the 'quotative value' within the structure of a phonological word (i.e. a verb). Consider the following sentence:

- (139) avan pe:ra:siriyar vaxuppu naḍattiRa:reṇḍu  
 1 2 3 4  
 sonna:n  
 5  
 'he said that the professor is conducting a  
 1 5 4 2 2 4 4 3  
 class'  
 3

In this sentence, the form [eṇḍu] cannot be considered as a word, because it is not a free form. It is, like the interrogative suffix, added either to a verbal form or to a nominal form. Even though it expresses the 'quotative value' at the word-level, it is needed in the higher level (i.e. sentence-level), because it acts as a link between a matrix sentence which is the statement of the person who

reports, and an embedded sentence which is the statement that is reported. In sentence (139), the matrix sentence is:

(140)   avan       sonna:n  
          1           2  
  
          'he said'  
          1       2

and the embedded sentence is:

(141)   pe:ra:siriyar   vaxuppu   naqattiRa:r  
              1                   2m           3  
  
          'the professor is conducting the class'  
          1       1       3       3       2       2

The feature [+quot] links both the statement of the person who reports and the statement that is reported. In this respect it differs from the feature [+report] which considers only the latter (i.e. the statement that is reported). Consider for example,

(142)   pe:ra:siriyar   vaxuppu   naqattiRa:ra:m  
              1                   2           3  
  
          'it seems that the professor is conducting a  
          3   3       3       1   1           3   3       2  
  
          class'  
          2

In this sentence, the suffix -/aam/, unlike the [+quot] suffix -/eNtu/ does not result from an embedding transformation. While the feature [+report] expresses the 'quotative value' within a sentence which does not result from an embedding transformation, the feature [+quot]



expresses the 'quotative value' within a sentence which resulted from an embedding transformation.

The following rules introduce the phonological forms of inter, report and quot:

PMIR 41:

$$[+inter] \rightarrow \begin{Bmatrix} ee \\ oo \end{Bmatrix} / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + [+suf] + [-]$$

PMIR 42:

$$[+report] \rightarrow aam / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + [+suf] + [—]$$

PMIR 43:

$$[+quot] \rightarrow eN[u / [+Vst] + \begin{Bmatrix} [+tns] \\ [+neg] \end{Bmatrix} + [+suf] + [—]$$

Let us now return to the discussion of the bracketed items in rule I. The expansion of the bracketed items in rule I will give the following structural patterns of Tamil verb forms (note that we are here concerned only with simple verbal forms; see 2.8 for complex verbal forms):

(a) Vst

e.g.	/paṭi/	→	[paṭi]	'study' (imp.)
	/paṭi + ppi/	→	[paṭippi]	'cause to study' (caus. imp.)

(b) Vst + suf

e.g.	/var + a/	→	[vara]	'to come'
------	-----------	---	--------	-----------

/kaɭɭ + u/	→	[kaɭɭu]	'bind' (imp.)
/cey + uNkoo/	→	[seyyunɡo:]	'do' (hon. imp.)

(c) Vst + quot

e.g. /cey + eNɭu/	→	[seyyenɖu]	'that (you) do'
/paɭi + eNɭu/	→	[paɖiyenɖu]	'that (you) study'

(d) Vst + tns + suf

e.g. /eRi + iR + an/	→	[eRiyiRan]	'I am throw- ing'
/taɭu + pp + aan/	→	[taɖuppa:n]	'he will stop'

(e) Vst + neg + suf

e.g. /tin + aa + mal/	→	[tinna:mal]	'without eating'
/var + aa + ta/	→	[vara:da]	'do not come' (neg. imp.)

(f) Vst + suf + inter

e.g. /tar + aan + ee/	→	[tara:ne:]	'will he not give '
/aRi + aan + oo/	→	[aRiya:no:]	'will he not know '

(g) Vst + suf + report

e.g. /var + aan + aam/ → [vara:na:m]  
 'it seems that he won't  
 come'

/ooḷ + aan + aam/ → [o:ḍa:na:m]  
 'itnseems that he won't  
 run'

(h) Vst + tns + suf + inter

e.g. /muḷi + kkiR + aan + ee/ → [muḍikkiRa:ne:]  
 'is he finishing?'

/caappiḷ + iir + aan + ee/ → [sa:ppiRRa:ne:]  
 'is he eating?'

(j) Vst + neg + suf + inter

e.g. /tin + aa + inam + ee/ → [tinna:yiname:]  
 'won't they eat '

/col + aa + mal + oo/ → [solla:malo:]  
 'without telling?'

(k) Vst + tns + suf + report

e.g. /camay + kkiR + aaḷ + aam/ → [samaykkiRa:ḷa:m]  
 'it seems that she is  
 cooking'

/uḷay + pp + aan + aam/ → [uḷayppa:na:m]  
 'it seems that he will earn'

(1) Vst + suf + quot

- e.g. /etu + an + eNtu/ → [eqaneŋdu]  
 'that I will not take'  
 /pati + um + eNtu/ → [paɖiyumeŋdu]  
 'that you study'

(m) Vst + suf + inter + quot

- e.g. /tar + aan + oo + eNtu/ → [tara:na:ŋdu]  
 '(someone asked) "won't he give"?'  
 Vst + /~~ceern+iaann++oo~~+teNtu/ → [se:ra:na:ŋdu]  
 '(someone asked) "won't he join"?'

(n) Vst + suf + report + quot

- e.g. /tot + aan + aam + eNtu/ → [toɖa:na:meŋdu]  
 "it seems that he won't touch"  
 /tiruNt + aan + aam + eNtu/ → [tirunda:na:meŋdu]  
 "it seems that he won't improve"

(o) Vst + neg + suf + quot

- e.g. /piti + aa + inam + eNtu/ → [piɖiya:yinameŋdu]  
 'that "they won't catch" '  
 /kiNt + aa + inam + eNtu/ → [kiŋɖa:yinameŋdu]  
 'that "they won't dig" '

(p) Vst + neg + suf + inter + quot

- e.g. /cey + aa + inam + oo + eNtu/ →  
 [seyya:yinamo:ŋdu] "will they not do" ?

/kaɽɿ + aa + inam + oo + eNɿu/ →

[kaɽɿa:yinamo:nɿdu] "will they not bind"?

(q) Vst + neg + suf + report + quot

e.g. /muuɿ + aa + inam + aam + eNɿu/ →

[mu:ɽa:yinama:menɿdu] "it seems that they  
will not close"

/viɿu + aa + utu + aam + eNɿu/ →

[viɿa:da:menɿdu] "it seems that it will  
not fall"

(r) Vst + tns + suf + quot

e.g. /kuɽɿ + kkiR + aan + eNɿu/ → [kuɽikkiRa:nenɿdu]

'that "he is drinking" '

/kaɽay + kkiR + aan + eNɿu/ → [kaɽaykkiRa:nenɿdu]

'that "he is getting tired" '

(s) Vst + tns + suf + inter + quot

e.g. /katay + pp + aan + oo + eNɿu/ →

[kadayppa:no:nɿdu] "will he talk" ?

/iRaNk + v + aan + oo + eNɿu/ →

[iRaŋguva:no:nɿdu] "will he get down" ?

(t) Vst + tns + suf + report + quot

e.g. /vaaNk + iR + aan + aam + eNɿu/ →

[va:ŋgiRa:na:menɿdu] "it seems that he  
is buying"





Vst + tr + caus + tns + suf

e.g. /kaṭa + tt + vi + kkiR + aan/ →  
 [kaḍattuvikkiRa:n] 'he is causing  
 it to be smuggled'

## 2.8 Complex Verb Forms

Complex verb forms in Tamil are formed with a complex verbal nuclear form and optional elements like tense, suffix, etc. In order to accomodate the complex forms within the constituent structure of verbal form, the term verb nucleus (following Bright and Lindenfeld, 1968: 31) can be used to refer to a structure that constitutes both the simple and complex verbal nuclear forms. Rules I and II in 2.7 describe the structure of a simple verbal stem. If complex verbs are taken into consideration, then rules I - XIV in 2.7 have to be reformulated as follows:

- |          |   |  |
|----------|---|--|
| I. Verb  | → | $\text{Vnuc} \left( \left( \left( \left( \begin{array}{c} \{+tns\} \\ \{+neg\} \end{array} \right) + \text{suf} \right) \left( \begin{array}{c} \{+inter\} \\ \{+report\} \end{array} \right) \right) \right) (+quot)$ |
| II. Vnuc | → | Vst + Aux  |
| III. Vst | → | as in rule II in 2.7.  |
| IV. Aux  | → | $\left\{ \begin{array}{l} +asp \quad (+mod) \\ +mod \end{array} \right\}$  |

V.	+asp	→	$\begin{bmatrix} +tns \\ +pst \end{bmatrix} + \text{adv part} + \left\{ \begin{array}{l} \text{comp (+perf)} \\ \text{perf (+reflex)} \\ \text{prog (+comp)} \\ \text{reflex} \\ \text{dis } \left\{ \begin{array}{l} (+comp) \\ (+tri) \end{array} \right\} \\ \text{rid } \left\{ \begin{array}{l} (+comp) \\ (+perf) \\ (+prog) \end{array} \right\} \left\{ \begin{array}{l} +perf \\ +prog \end{array} \right\} \\ \text{uti } \left\{ \begin{array}{l} (+comp) \\ (+perf) \\ (+prog) \\ (+reflex) \end{array} \right\} \\ \text{tri} \end{array} \right\}$
VI.	+comp	→	$\begin{bmatrix} poot \\ i\bar{l} \end{bmatrix}$
VII.	+perf	→	iru
VIII.	+prog	→	koN <sub>i</sub> iru
IX.	+reflex	→	ko <sub>i</sub>
X.	+dis	→	tulay
XI.	+rid	→	ta <sub>i</sub>
XII.	+uti	→	vay
XIII.	+tri	→	paar

XIV.	+mod	→	$\left\{ \begin{array}{l} \text{infin + supp} \\ \text{prop} \\ \text{caus} \\ \text{adj part + temp adj} \end{array} \right\}$
XV.	+supp	→	$\left\{ \begin{array}{l} \text{eelum} \\ \text{eelaatu} \\ \text{kuuṭum} \\ \text{kuuṭaatu} \\ \text{muṭiyum} \\ \text{muṭiyaatu} \\ \text{maaṭṭ} \end{array} \right\}$
XVI.	+prop	→	$\left\{ \begin{array}{l} \text{veeṇum} \\ \text{veeNṭaam} \end{array} \right\}$
XVII.	+caus	→	$\left\{ \begin{array}{l} \text{cey} \\ \text{paṇ} \\ \text{vay} \end{array} \right\}$
XVIII.	+temp adj	→	$\left\{ \begin{array}{l} \text{atukkuḷḷa} \\ \text{uṭana} \\ \text{piRaku} \\ \text{varaykkum} \end{array} \right\}$

Other constituents in rule I and II are expanded as in rules III - XIV in 2.7. According to the present rule I, a verb nucleus alone can form a complex verb form or the verb nucleus can take a tense marker and a suffix to form a complex verb form. Rule II states the constituents of a verb nucleus, which are expanded in rules III - XVIII. Rule IV

needs an explanation. We are forced to adopt an awkward form of rule where the feature +mod is repeated. This is unavoidable, because a simple verbal stem can take either an aspect marker or a modal; but a modal can also follow an aspect marker but the reverse is not possible. Consider the following examples:

(144) Vst + mod

e.g. /eRi + a + veeN<sub>1</sub>aam/ → [eRiyave:ŋda:m]

'do not throw'

Vst + asp + neg + imp (neg.)

e.g. /eRi + [+nas][+obs] + u + i<sub>1</sub> + aa + ta/ →

[eRipjida:da] 'do not throw'

Vst + asp + mod

e.g. /eRi + [+nas][+obs] + u + i<sub>1</sub> + a + veeN<sub>1</sub>aam/

→ [eRipjida:ve:ŋda:m] 'do not throw'

The expansion of +asp in rule V also needs an explanation. The tense marker referred to in this rule is considered to be optional. The option is decided by the adverbial participial suffix that follows the tense marker. If the adverbial participial suffix is /u/, then the past tense marker is obligatorily added. But if the adverbial participial suffix is /i/, then no tense marker is added and the tense marker in this place is considered to be phonologically null (see, p. 156 and p. 111). In this rule (V),

some of the aspect markers are repeated (like the modal in rule IV) in order to show the possible different combinations of the aspect markers that can occur in a single sequence. Each of the aspect markers can occur alone after a verbal stem or two or three of them can combine as a sequence to form a complex verbal form. The following <sup>some of</sup> are/the possible combinations:

- (145) (a) Vst + perf<sup>25</sup> + reflex + tns + suf

e.g. /var + [+nas][+obs] + u + iru + [+nas][+obs]  
+ u + koꞤ + [+nas][+obs] + aan/ →  
[vandirundukonɔa:n] 'he has come for  
himself'

- (b) Vst + tri  $\begin{Bmatrix} +\text{perf} \\ +\text{comp} \end{Bmatrix}$  +tns + suf

e.g. /paṭi + [+obs][+obs] + u + paar + [+obs][+obs]  
+ u + iru + kkiR + an/ →  
[paḍiccuppa:ttirukkiRan]  
'I have tried studying'  
/paṭi + [+obs][+obs] + u + paar +  
[+obs][+obs] + u + iṭ + [+obs] + an/ →  
[paḍiccuppa:ttiṭṭan] 'I have tried and  
completed studying'

25. The tense marker and the adverbial participial suffix that precede each of an aspect marker are not given in structures (a) to (h). But they are rendered in examples.

(c) Vst + uti  $\left\{ \begin{array}{l} +comp \\ +perf \\ +prog \\ +reflex \end{array} \right\} + tns + suf$

---

e.g. /e[u + [+obs][+obs] + u + vay + [+obs][+obs]  
+ u + i[ + [+obs] + aan/ →

[equttuvacci[ā:n] 'he has taken (it  
completely for future utility)'

/e[u + [+obs][+obs] + u + vay + [+obs][+obs]  
+ u + iru + kkiR + aan/ →

[equttuvaccirukkiRā:n] 'he has taken  
(it and having it for future utility)'

/e[u + [+obs][+obs] + u + vay + [+obs][+obs]  
+ u + ko[ + [+nas][+obs] + aan/ →

[equttuvaccukkoṇḍā:n] 'he has taken (for  
himself for future utility)'

/e[u + [+obs][+obs] + u + vay + [+obs][+obs]  
+ u + koN[iru + kkiR + aan/ →

[equttuvaccukkoṇḍirukkiRā:n] 'he has  
been taking (it for future utility)'

(d) Vst + dis + comp + tns + suf

e.g. /ku[u + [+obs][+obs] + u + tulay + [+obs]-  
[+obs] + u + poo[ + [+obs] + an/ →



[kuquttuttulaccuppo:ɭan] 'I have given  
(it completely with disgust)'

(e)  $Vst + rid \begin{Bmatrix} +comp \\ +perf \\ +prog \end{Bmatrix} + tns + suf$

---

e.g. /viɭ + [+obs] + u + taɭ + i + iɭ  
+ [+obs] + an/ → [viɭɭuttaɭli:ttaɭ]  
'I have left (it completely to get  
rid of)'

/viɭ + [+obs] + u + taɭ + i + iru  
+ pp + an/ → [viɭɭuttaɭliyiruppan]  
'I would have left (it to get rid of)'

/viɭ + [+obs] + u + taɭ + i + koNɭiru  
+ kkiR + an/ →  
[viɭɭuttaɭlikkoṇḍirukkiRaɭ]  
'I have been leaving (it to get  
rid of)'

(f)  $Vst + rid + comp + prog + tns + suf$

---

e.g. /viɭ + [+obs] + u + taɭ + i + pooɭ  
+ [+obs] + u + koNɭiru + kkiR + aan/ →  
[viɭɭuttaɭlippo:ɭukkoṇḍirukkiRa:n]  
'he had have been leaving (it to  
get rid of it completely)'

- (g) Vst + rid + comp + perf + tns + suf

PMIR 45:

$$\begin{bmatrix} +asp \\ +perf \end{bmatrix} \rightarrow \text{iru} / \left\{ \begin{array}{l} [+Vst] + \begin{bmatrix} +tns \\ +pst \end{bmatrix} + [+adv \text{ part}] + [—] \\ \left\{ \begin{array}{l} [+comp] \\ [+rid] \\ [+uti] \end{array} \right\} + ([—]) \\ [+rid] + [+comp] + ([—]) \end{array} \right.$$

PMIR 46:

$$\begin{bmatrix} +asp \\ +prog \end{bmatrix} \rightarrow \text{koN[iru]} / \left\{ \begin{array}{l} [+Vst] + \begin{bmatrix} +tns \\ +pst \end{bmatrix} + [+adv \text{ part}] + [—] \\ \left\{ \begin{array}{l} [+rid] \\ [+uti] \end{array} \right\} + ([—]) \\ [+rid] + ([+comp]) + ([—]) \end{array} \right.$$

PMIR 47:

$$\begin{bmatrix} +asp \\ +reflex \end{bmatrix} \rightarrow \text{ko} / \left\{ \begin{array}{l} [+Vst] + \begin{bmatrix} +tns \\ +pst \end{bmatrix} + [+adv \text{ part}] + [—] \\ \left\{ \begin{array}{l} [+perf] \\ [+uti] \end{array} \right\} + ([—]) \end{array} \right.$$

PMIR 48:

$$\begin{bmatrix} +asp \\ +dis \end{bmatrix} \rightarrow \text{tulay} / \begin{bmatrix} +Vst \\ +pst \end{bmatrix} + \begin{bmatrix} +tns \\ +pst \end{bmatrix} + [+adv \text{ part}] + [—]$$



/var + a + muṭiyum/	→	[varamuḍiyum]
		'can come'
/var + a + muṭiyaatu/	→	[varamuḍiya:du]
		'cannot come'
/var + a + maatṭ + an/	→	[varama:ṭan]
		'I will not come'

The second group of modal auxiliaries express a semantic notion of 'proposition'. The following examples illustrate the use of the second group of modals:

(147) /var + a + veenṭum/	→	[varave:ṭum]
		'should come'
/var + a + veeṆṭaam/	→	[varave:ṭḍa:m]
		'should not come'

The third group of modals can be considered as a kind of causative suffixes. These suffixes are: /cey/, /paṇ/ and /vay/ (see, pp. 192-3 for examples for this kind of causative formation). The main difference between this kind of causative formation and the causative formation that we have already discussed in 2.6.2(b) is that the latter can be formed with the stems that are either inherently transitives or already transitivized; but the former can be formed from any stem. The other difference is that the transitives or causatives are formed by adding the suffixes straight to the verbal stems; but the present kind of suffixes are added to a form that consists of a

verbal stem and an infinitival suffix. In order to maintain the condition that we have imposed to differentiate transitivization and causativation (see, p. 191), we can regard those forms that are derived by adding these suffixes to intransitive stems as transitives and those forms that are derived by adding these suffixes to a transitive stems as causatives. But since this difference is not crucial for these forms, we refer to them as causatives.

The modals that belong to the fourth group are termed temporal adjuncts. There are some auxiliaries in Tamil, which modify the verb stem with reference to its 'time' of action. Such auxiliaries are: /atukkuḷa/, 'before', /uḷana/ 'immediately after' or 'as soon as', /piRaku/ 'after', /varaykkum/ 'until'.

An adjunct is by definition a modifier attached to a head upon which it is dependent (For the terms adjunct modifier and head, see, Lyons, 1968: 233;;344-50). We are here not concerned with what are normally regarded as sentence adjuncts; but with modifiers of lower-level constituent, namely, the modifiers of verb stem within the constituent verb. A sentence adjunct, for example, the words piRaku 'later', uḷana 'immediately' can all be attached as adjuncts to the nucleus (which is itself a sentence) Selvi ko:yilukkup po:na:ḷ 'Selvi went to the temple'. But



the adjuncts with which we are concerned, are not words, but auxiliary suffixes. These suffixes are added to any verbal stem with respect to the condition of compatibility between the adjuncts (i.e. suffixes) and the tense of the verbal form.

The condition of compatibility between the adjunct and the tense of the verbal form is necessary for temporal adjuncts (see, Lyons, 1968: 349 for a discussion on tense and temporal adjuncts). Thus, among the auxiliaries listed above, piRaku and uṭana can occur only after a past tense marker; varaykkum and otukkuḷḷa can occur only after a present tense marker. If this condition of compatibility between the temporal adjuncts and tense of the verb is broken, then the verb to which the temporal adjunct is 'attached' is rendered ungrammatical: e.g. te:qiRapiRaxu vs. te:qinapiRaxu. Thus, the phonological matrix insertion rule which introduces these adjuncts is formulated (see, PMIR 55 ) in such a way that the prior selection of a particular tense subsequently restricts the choice of a temporal adjunct.

While the previous three groups of modals are formed by adding the modal auxiliaries to a form that consists of a verb stem and an infinitival suffix, the temporal adjunct verbal forms are formed by adding the temporal adjunct

suffixes to a form that consists of a verbal stem, a tense marker (either past or non-past, see, pp. 158-60) and an adjectival participial suffix. Notice that the resulting forms are all temporal adjuncted adverbial participles.

The following can be cited as examples:

- (148) /teeṭ + in + a + piRaku/ →  
           [te:ḍinapiRaxu]        'after searching'  
 /muṭi + [+obs][+obs] + a + uṭana/ →  
           [muḍiccavuḍana]       'immediately after finishing'  
 /avi + iR + a + varaykkum/ →  
           [aviyiRavaraykkum]   'until (it) boils'  
 /cey + iR + a + atukkuṭṭa/ →  
           [seyyiRadukkuṭṭa]    'before doing'

The following phonological matrix insertion rules introduce all the four groups of modal auxiliaries:

PMIR 52:

$$\begin{bmatrix} +\text{mod} \\ +\text{supp} \end{bmatrix} \rightarrow \left\{ \begin{array}{l} \text{eelum} \\ \text{eelaatu} \\ \text{kuuṭum} \\ \text{kuuṭaatu} \\ \text{muṭiyum} \\ \text{muṭiyaatu} \\ \langle \text{maatṭ} \rangle_a \end{array} \right\} / \left\{ \begin{array}{l} [+Vst] + [+infin] + [—] \\ [+Vst] + [+asp] + [+infin] + [—] \\ \langle [+Vst] + [+infin] + [—] + [+PNG] \rangle_b \end{array} \right\}$$

PMIR 53:

$$\begin{bmatrix} +\text{mod} \\ +\text{prop} \end{bmatrix} \rightarrow \left\{ \begin{array}{l} \text{veeṇum} \\ \text{veeNṭaam} \end{array} \right\} / \left\{ \begin{array}{l} [+Vst] + [+infin] + [—] \\ [+Vst] + [+asp] + [+infin] + [—] \end{array} \right\}$$

PMIR 54:

$$\begin{bmatrix} +\text{mod} \\ +\text{caus} \end{bmatrix} \rightarrow \begin{Bmatrix} \text{cey} \\ \text{pan} \\ \text{vay} \end{Bmatrix} / \left\{ \begin{array}{l} [+Vst] + [+infin] + [—] \\ [+Vst] + [+asp] + [+infin] + [—] \end{array} \right\}$$

PMIR 55:

$$\begin{bmatrix} +\text{mod} \\ +\text{temp adj} \end{bmatrix} \rightarrow \begin{Bmatrix} \text{piRaku} \\ \text{u[ana} \end{Bmatrix} / \left\{ \begin{array}{l} [+Vst] + \begin{bmatrix} +\text{tns} \\ +\text{pst} \end{bmatrix} + [+adj \text{ part}] + [—] \\ [+Vst] + [+asp] + \begin{bmatrix} +\text{tns} \\ +\text{pst} \end{bmatrix} + [+adj \text{ part}] + [-] \end{array} \right\}$$

$$\begin{Bmatrix} \text{varaykkum} \\ \text{atukku[la} \end{Bmatrix} / \left\{ \begin{array}{l} [+Vst] + \begin{bmatrix} +\text{tns} \\ -\text{pst} \\ +\text{prt} \end{bmatrix} + [+adj \text{ part}] + [—] \\ [+Vst] + [+asp] + \begin{bmatrix} +\text{tns} \\ +\text{pst} \\ +\text{prt} \end{bmatrix} + [+adjpart] + [-] \end{array} \right\}$$

## CHAPTER THREE

## 3. POSITIVE CONDITIONS AND TRAFFIC RULES

3.1 Preliminary Remarks

The positive conditions and traffic rules apply before the readjustment rules (see, 1.4(b)). The positive conditions state the regularities that exist within Tamil verbal stems; within grammatical morphemes and within phonological words. There are certain irregularities on which the positive conditions have no domain to make any statements. These irregularities or unacceptable elements or unacceptable sequences have ultimately to be subject to the P-rules. The traffic rules in the grammar identify these irregularities and mark them to be shunted into the P-rules.

3.2 Positive Conditions

The rules which are termed sequence structure rules (see, 4.1) within the redundancy rules component express sequential constraints on the sequence of phonological elements within the lexical morphemes; on the sequence of phonological elements within the phonological word. The positive conditions which are considered to be meta rules also perform the same function. But the difference

between the sequence structure rules and the positive conditions lies in their domain of application. The latter express sequential constraints that occur in all the Tamil lexical morphemes and the phonological words; whereas the former express sequential constraints that occur in groups of Tamil morphemes and phonological words. This difference can be illustrated with the following example. In a sequence of two obstruents, the first and the second members are noncontinuant and voiceless. This sequential constraint occurs only in those morphemes or phonological words that have a sequence of two obstruents. Therefore a rule (see, R 21 in p.315) that expresses this constraint applies only to a group of lexical morphemes or phonological words. A positive condition may state that on the sequence of phonological elements within the lexical entries,<sup>1</sup> a lexical stem<sup>2</sup> may begin with sequences [+cns][-cns], [+cns][-cns][-cns], [-cns], [-cns][-cns]. This is a general constraint on all the Tamil morphemes. While stating positively the above

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1. Lexical entries refer to both verbal stems and grammatical formatives.

2. Lexical stem refers exclusively to the verbal stems.

sequences, this condition at the same time prohibits any sequence of [+cns][+cns] from beginning a lexical stem. A rule of this kind expresses valid generalizations about the distribution in which the phonological elements, namely, consonants and nonconsonants, of native morphemes can occur. Lexical stems which do not undergo this rule and whose consonants and nonconsonants, accordingly, are not subject to the sequential constraint imposed by this positive condition will betray their foreign origin.

Let us now examine how the positive conditions express the permitted sequences of phonological elements within lexical morphemes, grammatical morphemes and phonological words. The following symbols are used in expressing the permitted sequences:

+	:	morpheme boundary
++	:	word boundary
C	:	consonant
V	:	nonconsonant

The minimum sequences of lexical stems, grammatical formatives and phonological words are stated in the sequential constraints. For all other sequences which are greater than these minimum sequences, the constraints within bracket R reapply (see, Brown, 1971: 85 for this convention).



### 3.2.1 Lexical Stem

P(ositive) C(ondition) 1:

$$+(C)V(V)C^R((C)V(V)C(C)V(V)C(V))^R_+$$

This condition states:

- (a) a lexical stem consists minimally of VC,
- (b) a lexical stem may begin with the sequences of CV, CVV, V, VV, VC, VVC,
- (c) the minimum sequence of V is VV,
- (d) the maximum sequence of C is CC,
- (e) the final element can be either C or V; either CC or VV.

### 3.2.2 Grammatical Formatives

PC 2:

$$+(C(V))V^R(C(C)V(V)CVC)^R_+ / +C_+$$

This condition states that:

- (a) a grammatical formative consists minimally of V or C,
- (b) a grammatical formative may begin with the sequences of CV, CVV, V, VV, C,
- (c) the maximum sequence of V is VV
- (d) the maximum sequence of C is CC
- (e) the final element can be either V or C; either VV or CC.

### 3.2.3 Phonological Word

PC 3:

$$++ (C)V(V)C(C)\{C\}V^R ((V)(V)C(C)V(V)C(C)V(V)(C))^R ++ /$$

$$++ CVV ++$$

This condition states that:  
This condition states that:

- (a) a phonological word consists minimally of VCV or CVV,
- (b) a phonological word may begin with the sequences of CV, CVV, V, VV, VC, VVC,
- (c) the maximum sequence of V is VVV,
- (d) the maximum sequence of C is CCC,
- (e) the final element must be V or VV or C.

### 3.2.4 Some Constraints

Before we discuss the constraints on the initial and final elements of the phonological words, there is a problem regarding the sequence of VV which has to be mentioned first. At the outset PC 4 has to apply on any sequence of VV that occurs within morpheme boundaries. It states that any sequence of VV can only be two identical elements:

PC 4:	V	V		
	ɹfnt	ɹfnt	<u>except</u>	V + V
	ɸmed	ɸmed		
	ɹlow	ɹlow		

i.e. a sequence of VV within morpheme boundaries  
can only be two identical nonconsonants.

The sequence of VV ultimately realizes into a single unit with feature long (symbolized 'V:'). The redundancy rules in the present model of description are designed to add features. But in a case like the sequence of VV, the redundancy rule can easily add the feature long by a rule like the following:

If,	[-cns][-cns]
	↓
Then,	[+lng]

But the same rule cannot state that those two units have contracted into one. Thus we have allowed one of the positive conditions (i.e. PC 5) to state that any sequence of VV realizes as a single V with the feature [+lng].

Hence, the following positive condition is given:

PC 5:

If,	$\begin{array}{cc} V & V \\   &   \\ \hline & \end{array}$	
	↓	
Then,	V	<u>except:</u> V + V
	+lng	

Add [-lng] to any single V

i.e. if there is a sequence of VV, then it becomes a single unit as a long nonconsonant except when this sequence is interrupted by a morpheme boundary. A single V is added with the feature [-lng].

e.g. /poo/	→	[po:]	'go'
------------	---	-------	------

/ceer/	→	[se:r]	'join <del>g</del> reach'
/paay/	→	[pa:y]	'jump'
/kee\_/	→	[ke:ɿ]	'ask, hear'

There are special constraints on the initial C, the final V or C. These constraints, which are general ones, have to be stated in all parts of the grammar. There is no justification for including them within the sequence structure rules. Since they express valid generalizations on the distribution of consonants and nonconsonants in the initial and final positions of all Tamil phonological words, they can be included in the group of rules which are considered to be meta rules. PC 6 can be thought of as expressing the constraints on the initial C of a phonological word:

PC 6:

++ C

$$\left\{ \begin{array}{l} \left[ \begin{array}{l} +\text{obs} \\ +\text{nas} \end{array} \right] \\ -\text{ret} \\ \left[ \begin{array}{l} +\text{cns} \\ +\text{app} \end{array} \right] \end{array} \right\}$$

i.e. the initial C of a phonological word can be any one of the following phonological elements:

- (a) nonretroflex obstruents (/p, t, C, k/)
- (b) nonretroflex nasals (/m, n/)
- (c) approximants (/v, y/).

The next positive condition states the constraints on the final V or V: of a phonological word:

PC 7:

V(:) ++

$$\left\{ \begin{array}{l} \begin{array}{l} \text{Xfnt} \\ -\text{med} \\ -\text{low} \end{array} \\ \begin{array}{l} \text{Xfnt} \\ -\text{med} \\ +\text{low} \\ +\text{lng} \end{array} \\ \begin{array}{l} -\text{fnt} \\ +\text{med} \\ +\text{low} \\ \text{Xlng} \end{array} \end{array} \right.$$

X = either plus or minus.

i.e. any one of the following vowels can occur finally in a phonological word:

- (a) front, nonmedial, nonlow vowel (i.e. /i/) or a nonfront, nonmedial, nonlow vowel (i.e. /u/).
- (b) front, nonmedial, low, long vowel (i.e. /ee/ → [e:]) or a nonfront, nonmedial, low, long vowel (i.e. /oo/ → [o:]).
- (c) nonfront, medial, low, nonlong vowel (i.e. /a/) or nonfront, medial, low, long vowel (i.e. /aa/ → [a:]).

PC 8 expresses the constraints on the final C of phonological words:

PC 8:

C ++

$$\left\{ \begin{array}{l} \begin{array}{l} +nas \\ -ret \end{array} \\ [+lat] \\ \begin{array}{l} +cns \\ +app \\ -fnt \end{array} \\ \begin{array}{l} -lat \\ -ret \end{array} \end{array} \right\}$$

i.e. any one of the following consonants can be a final element of a phonological word:

- (a) nonretroflex nasal (i.e. /m/ or /n/)
- (b) all laterals (i.e. /l/ or /ɭ/)
- (c) nonfront approximant consonant (i.e. /y/)
- (d) nonlateral, nonretroflex consonant  
(i.e. /r/)

### 3.2.5 Underlying Structure of the Verbal Stems

Among the verbal stems that are taken up for the present study, 41 types of underlying sequences are found. In certain groups where there are many stems, only a few examples are given. The rest of the stems of those groups can be found in Appendix I. The following are the underlying



## structural patterns of the verbal stems:

I.

CVC

38 stems

/toʔ/-	'touch'
/paʔ/-	'do'
/tin/-	'eat'
/tum/-	'sneeze'
/cey/-	'do'
/nil/-	'stand'
/taʔ/-	'push'
/tar/-	'give'
/var/-	'come'

II.

CVCC

51 stems

/tapp/-	'escape'
/naNp/-	'believe'
/katt/-	'shout'
/kuNt/-	'sit'
/tiʔt/-	'scold'
/kiNʔ/-	'dig'
/koNc/-	'kiss'
/naʔk/-	'lick'
/toNk/-	'hang'

## III.

CVVC

59 stems

/moot/-	'collide'
/kuuɿ/-	'join'
/puuc/-	'smear'
/kuun/-	'hunch-back'
/koon/-	'bend'
/kool/-	'scoop'
/taaɿ/-	'drown'
/paar/-	'see'
/ciiR/-	'huff with anger'
/paay/-	'jump'
/kaav/-	'carry'

## IV.

## CVVCC

35 stems

/cuupp/-	'suck'
/teeNp/-	'sob'
/caatt/-	'shut'
/kaaNt/-	'burn'
/kaaɿt/-	'show'
/tooNɿ/-	'dig'
/piicc/-	'eject watery motion'
/taakk/-	'attack'
/vaaNk/-	'buy'

V.	<u>VC</u>	5 stems
	/am/-	'feel heavy, overcast'
	/un/-	'leap, spring, jump'
	/en/-	'count'
	/aɫ/-	'take handful'
	/uy/-	'escape'
VI.	<u>VCC</u>	10 stems
	/app/-	'smear'
	/ott/-	'touch gently'
	/eɫɫ/-	'reach for'
	/aNɫ/-	'shelter'
	/ucc/-	'play out'
	/ekk/-	'draw in the stomach'
VII.	<u>VVC</u>	16 stems
	/uut/-	'blow'
	/aaɫ/-	'dance'
	/eec/-	'scold'
	/aak/-	'become'
	/iin/-	'give birth'
	/aaɫ/-	'govern'
	/uur/-	'crawl'
	/eeR/-	'climb'
	/aay/-	'pluck'
	/eev/-	'order'

VIII.

VVCC

6 stems

/uutt/-	'pour'
/eeNt/-	'sustain'
/uuɫt/-	'feed'
/uuNɫ/-	'fix'
/eeNk/-	'frighten'
/ooNk/-	'raise'

IX.

CVV

6 stems

/tii/-	'burn'
/vee/-	'boil, cook'
/puu/-	'flower'
/poo/-	'go'
/noo/-	'pain'
/caa/-	'die'

X.

CVCV

116 stems

/ciri/-	'smile'
/kaɭi/-	'bite'
/kuɭu/-	'give'
/peru/-	'grow large'
/cuma/-	'carry'
/tiRa/-	'open'

XI.	<u>CVVCV</u>	20 stems
	/coop/-	'be graceful'
	/vaaci/-	'read'
	/cooti/-	'examine'
	/paavi/-	'use'
	/taaḷi/-	'season'
	/paari/-	'uproot'
	/yooci/-	'think'
XII.	<u>CVCCV</u>	12 stems
	/manni/-	'pardon'
	/caṇti/-	'meet'
	/citti/-	'succeed'
	/kaṇṭi/-	'punish'
XIII.	<u>VCV</u>	26 stems
	/eri/-	'burn'
	/ini/-	'be sweet'
	/iru/-	'sit'
	/eṭu/-	'take'
	/aḷa/-	'measure'
	/ura/-	'increase'
XIV.	<u>CVCVC</u>	105 stems
	/muḷuc/-	'blink'
	/karuk/-	'burn'

	/cerum/-	'cough'
	/vaRaḷ/-	'become dry'
	/toṭar/-	'follow'
	/kiḷaR/-	'stir'
	/kaḷuv/-	'clean, wash'
	/katay/-	'talk'
XV.	<u>VCVC</u>	46 stems
	/alac/-	'wash'
	/aḷuk/-	'become rotten'
	/irum/-	'cough'
	/aviḷ/-	'untie'
	/etir/-	'oppose'
	/aray/-	'grind'
XVI.	<u>CVCCVC</u>	1 stem
	/kuNpiḷ/-	'worship'
XVII.	<u>VCCVC</u>	1 stem
	/aNpiḷ/-	'get caught'
XVIII.	<u>CVVCCVC</u>	2 stems
	/kuuppiḷ/-	'call'
	/caappiḷ/-	'eat'
XIX.	<u>VVCCVC</u>	1 stem
	/aappiḷ/-	'get caught'



XX.	<u>CVCVVC</u>	5 stems
	/viḷaac/-	'beat'
	/tuḷaav/-	'search'
	/viḷaay/-	'be thirsty'
XXI.	<u>VCVVC</u>	3 stems
	/uraay/-	'rub'
	/ulaav/-	'stroll'
	/araav/-	'sharpen'
XXII.	<u>VVCVVC</u>	2 stems
	/eemaaR/-	'disappoint'
	/aaraay/-	'research'
XXIII.	<u>CVVCVVCC</u>	2 stems
	/paaraaṭṭ/-	'congratulate'
	/taalaaṭṭ/-	'sing lullaby'
XXIV.	<u>VVCVVCC</u>	2 stems
	/aalaatt/-	'show holy lamp'
	/ooraaṭṭ/-	'sing lullaby'
XXV.	<u>CVCVCC</u>	72 stems
	/maḷupp/-	'lie'
	/tiruNp/-	'turn'
	/tiruNt/-	'improve'

/cimiŋt/-	'wink'
/kuRaŋt/-	'cramp'
/vicukk/-	'fan'
/kacaŋk/-	'crumble'

XXVI. VCVCC 28 stems

/anupp/-	'send'
/alaŋp/-	'wash'
/uraŋc/-	'rub'
/aŋuŋt/-	'suffer'
/uRukk/-	'threaten'

XXVII. VCVVCC 3 stems

/aŋaapp/-	'cheat'
/ulaatt/-	'stroll'
/iRaac/-	'pinch'

XXVIII. CVCCVVC 4 stems

/tiŋtaat/-	'struggle'
/taŋlaat/-	'stagger'
/maŋtaat/-	'pray'
/koŋtaat/-	'celebrate'

XXIX. CVCVVCC 2 stems

/milaaŋt/-	'be foolish'
/viRaadŋt/-	'scratch'

XXX.	<u>CVCCVVCC</u>	1 stem
	/mallaatt/-	'put upside down'
XXXI.	<u>CVCCVVCV</u>	3 stems
	/caNpaari/-	'save'
	/ciNkaari/-	'decorate'
	/cittaari/-	'summon'
XXXII.	<u>CVCVCV</u>	3 stems
	/kavani/-	'watch'
	/niyami/-	'appoint'
	/vayiri/-	'become hard'
XXXIII.	<u>VCVCV</u>	1 stem
	/orumi/-	'unite'
XXXIV.	<u>CVCCVCV</u>	2 stems
	/koppil <i>i</i> /-	'gargle'
	/cammati/-	'agree'
XXXV.	<u>CVVCVCV</u>	2 stems
	/kaatali/-	'love'
	/muutali/-	'appeal'
XXXVI.	<u>VVCVCV</u>	1 stem
	/aatari/-	'support'

XXXVII.	<u>VCCVCV</u>	6 stems
	/oppuvi/-	'handover'
	/uttari/-	'suffer'
	/uccari/-	'pronounce'
	/aNtari/-	'be helpless'
	/eccari/-	'warn'
XXXVIII.	<u>VVCVVCV</u>	2 stems
	/aamooti/-	'agree'
	/aalooci/-	'consult'
XXXIX.	<u>CVVCVCVC</u>	1 stem
	/taɭumaaR/-	'be confused'
XXXX.	<u>CVCVCCVC</u>	1 stem
	/payappiɭ/-	'be frightened'
XXXXI.	<u>VCVCVCV</u>	3 stems
	/anucari/-	'follow, observe'
	/anupavi/-	'enjoy, suffer'
	/atikari/-	'increase'

### 3.3 Traffic Rules

The concept of traffic rules in phonology is borrowed

from Brown (1971: 97). Lees (1960: 54-79) argued for an introduction of traffic rules in transformational grammar as an alternative to the problem of rule ordering: "Another alternative is to suppose that our general metatheory of grammar supplies, in addition to a specification of the form of grammatical rules, also some complex scheme for 'traffic laws' within a grammar, and each has then a 'control unit' which directs the order of application of rules, permitting both simple recursions, or reapplications of a rule before moving on, as well as loops in which the path of derivation through the rules curves back on itself to pass through the rules which have already been applied in the generation of certain sentence types". Lees's concept of traffic rules in syntax differs from that of Brown in phonological description. The difference can be explained with the following metaphor. Consider a policeman directing the traffic and another policeman booking a person who breaks the traffic laws and taking him to courts for necessary actions. Lees's traffic rules resemble the function of the former, while the traffic rules with which Brown was concerned resemble the function of the latter. They identify the inadmissible sequences as the policeman finding the culprit; they mark those inadmissible sequences to be shunted into the necessary phonological rules as policeman

taking the culprit to courts for necessary actions. A policeman is, sometimes, expected to perform both functions mentioned above. Similarly, in the present description, the traffic rules sometimes perform both functions. That is, they identify inadmissible sequences and mark all columns of a matrix containing an inadmissible sequence with the feature [+P-X] and while marking the feature [+P], the traffic rules indicate the number or numbers of the P-rules and, if necessary, impose a restriction in the order of their application (see, for example, T 5 in p.275).

Traffic rules can be compared with Stanley's (1967: 427-8) negative conditions. Although both perform the same function of identifying the inadmissible sequences in the language, they differ greatly in giving the final treatment to those sequences. In the case of the latter, as the condition states that, all matrices in U of which N(C) is a subset are rejected, all other matrices are accepted. But in the case of the former, no matrices are rejected; instead, those matrices which have the inadmissible sequences that are identified by the traffic rules, are submitted to the P-rules for correction.

In C and H model, a matrix whether it meets the condition of invariance or not has to go through the P-rules for its phonetic realisation. If the elements of an item in the



dictionary matrix or underlying matrix, emerge in the phonetic representation without any change in their feature specifications that were assigned in their underlying level, then the condition of invariance is said to be obtained.

The condition of invariance is described by C and H (: 166) as follows: "the phonological matrix given in its lexical entry is a submatrix of the phonetic matrix corresponding to it, in each context in which it occurs". Consider the verbal stems /ari/- 'sift' and /tin/- 'eat'. The underlying matrices of these items are given in Table 3.1:

	a	r	i		t	i	n
cns	-	+	-		+	-	+
app		-			-		-
obs		-			+		
nas		-					+
lat		-					
ret		-			-		-
fnt	-	-	+		+	+	-
med	+	+	-		+	-	+
bck		-			-		-
low	+		-			-	

Table 3.1

In the case of the stem /ari/-, it meets the condition of invariance in whatever context in which it occurs. The

features assigned to it in the underlying matrix are never changed by any rule. But in the case of the verbal stem /tin/-, the final nasal element is deleted by a phonological rule (see, P 1) when it occurs before a sequence of two consonants. Therefore, this item does not always meet the condition of invariance. Unlike C and H's model, the present model of description does not demand the matrix of the stem /ari/- which meets the condition of invariance to enter the phonological rules. But the matrix of the stem /tin/- has to enter the phonological rules when it occurs before a sequence of two consonants. Traffic rules in the present model, are so designed that they predict those matrices which do not meet the condition of invariance.

Following are the traffic rules (henceforth, T-rules) of the phonology. They mark all matrices that have to be shunted into the phonological rules with the feature [+P] and the number or numbers of the P-rules that will operate on them. If more than one P-rule is referred to, then those P-rules are expected to apply in that order of specification:

T 1:

If,            [+cns][+cns][+cns]

                 ↓            ↓            ↓

Then,           [+P-1][+P-1][+P-1]

Except

+cns	+cns	+cns
+app	+obs	+obs
-fnt	-ret	-ret
	αfnt	αfnt
	-med	-med
	βbck	βbck

i.e. if a matrix consists of a sequence of three consonants, then it is shunted into P-1 where the first consonant will get deleted. But if the sequence of three consonants is either /ykk/ or /ypp/, then it is not shunted into P-1.

e.g. /nil + kkiR + an/ → [nikkiRan]  
'I am standing'

/paar + pp + an/ → [pa:ppan]  
'I will see'

/kee] + kkiR + an/ → [ke:kkirAn]  
'I am asking'

/teey + kkiR + an/ → [te:ykkirAn]  
'I am rubbing'

/teey + pp + an/ → [te:yppan]  
'I will rub'

T 2:

If,  $+ \begin{bmatrix} -\text{cns} \\ +\text{lng} \end{bmatrix} \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} ++$

↓      ↓

Then,  $[+P-2][+P-2]$

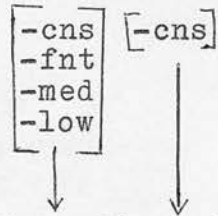
i.e. if a matrix consists of a word-final nonfront approximant consonant preceded by a long nonconsonant and a morpheme boundary, then it is

shunted into P-2 where the approximant consonant will get deleted.

e.g. /paat + in + aay/ → [pa:qina:]  
'you sang'  
/vay + kkiR + aay/ → [vaykkiRa:]  
'you are keeping'  
/col + iR + aay/ → [solliRa:]  
'you are telling'

T 3:

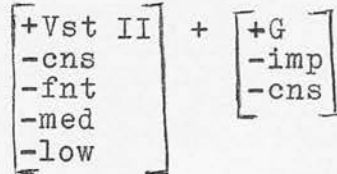
If,



Then,

$$[+P-3][+P-3]$$

Except



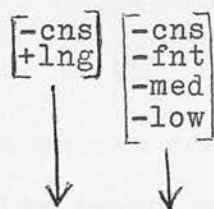
i.e. if a matrix consists of a sequence of two nonconsonants of which the first member is a nonfront, nonmedial, and nonlow one (i.e. /u/), then it is shunted into P-3 where the first nonconsonant will get deleted; but if the first nonconsonant is a final element of a Class II verbal stem and if it is followed by a nonconsonant that is an initial member of any grammatical category that is other

than an imperative, then the matrix is not shunted into P-3.

e.g. /vilu + an/ → [vilan]  
                                'fall' (imp.)  
  
      /u + iR + an/ → [viliran]  
                                'I am falling'  
  
      /var + [+nas][+obs] + u ++ iru ++/ →  
                            [vandiru]     'come and sit'  
  
      /etu + an/ → [edan]  
                                'take' (imp.)

T 4:

If,

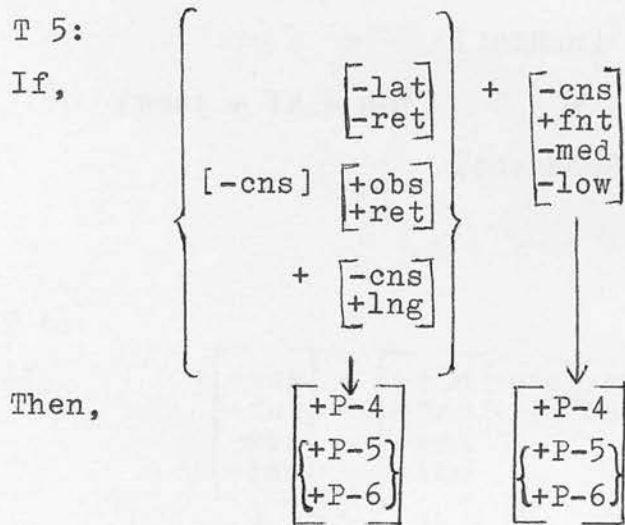


Then,  $[+P-3][+P-3]$

i.e. if a matrix consists of a sequence of two nonconsonants of which the first member is long, and the second member is nonfront, nonmedial, and nonlow (i.e. /u/), then it is shunted into P-3 where the second member will get deleted.

e.g. /vilu + aa + utu/ → [vila:du]  
'it will not fall'

/var + aa + utu/                      →    [vara:du]  
   'it will not come'  
 /eRi + aa + utu/                      →    [eRiya:du]  
   'it will not throw'



i.e. if a matrix consists of a nonfront, nonmedial, nonlow nonconsonant (i.e. /i/) which is preceded by a morpheme boundary and which is preceded by any one of the following: nonlateral, nonretroflex (/r/); a retroflex obstruent (/ɭ/) preceded by a nonconsonant; a long nonconsonant preceded by a morpheme boundary, then it is shunted into P-4, P-5 and P-6 where, the nonsonsonant /i/ will get deleted by P-4 and then the matrix can be subject to either P-5 or P-6 according to the structural description of the rule and the matrix.





P-8 changes the retroflex obstruents into nonretroflex, nonfront, medial and nonback ones (i.e. /tʃ/ → [tʃ]).

e.g. /taʃ + i + iʃ + [+obs] + aan/ → /taʃ + iʃ + [ɹ] + a:n/  
 → /taʃ + i:ʃ + [ɹ] + a:n/ → [taʃi:tʃa:n]

'he has pushed'

/maʃR + i + iʃ + [+obs] + aan/ → /ma:R + iʃ + [ɹ] + a:n/  
 → /ma:R + i:ʃ + [ɹ] + a:n/ → [ma:Ri:tʃa:n]

'he has changed'

T 7:

If,

$$+ \begin{bmatrix} -\text{cns} \\ -\text{fnt} \\ +\text{med} \\ +\text{low} \\ +\text{lng} \end{bmatrix} \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} + \begin{bmatrix} -\text{cns} \\ +\text{lng} \end{bmatrix}$$

Then,

$$\begin{matrix} \downarrow & \downarrow & \downarrow \\ [+P-9] [+P-9] & [+P-9] \end{matrix}$$

i.e. if a matrix consists of a nonfront approximant consonant which is preceded by a nonfront, medial, low, long, nonconsonant and a morpheme boundary (i.e. + /aa/) and followed by a morpheme boundary and a long nonconsonant, then the matrix is shunted into P-9 where the preceding long nonconsonant (/aa/) will be changed to [i].

e.g. /kaɫɪ + iR + aay + ee/ → [kaɫɪiRiye:]  
'are you binding'  
/naɫi + pp + aay + aam/ → [naɫippiya:m]  
'it seems that you will act'  
/kiNɪ + iR + aay + oo/ → [kiŋɪRiyo:]  
'are you digging'

T 8:

If,

$$++ \begin{bmatrix} +cns \\ -lng \end{bmatrix} \begin{bmatrix} -cns \\ +ret \end{bmatrix} + \begin{bmatrix} +Vn \ 4 \\ -cns \end{bmatrix}$$

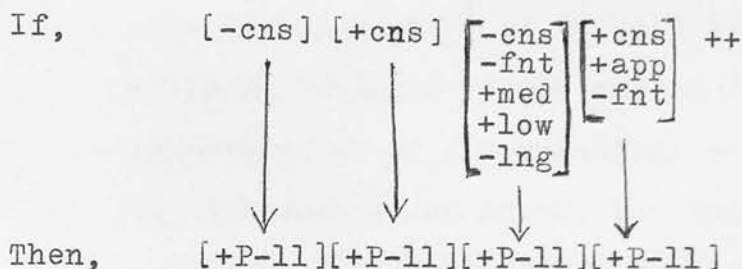
Then,

[+P-10][+P-10][+P-10][+P-10]

i.e. if a matrix consists of a retroflex obstruent preceded by a sequence of a phonological word boundary, a consonant and a nonlong nonconsonant and followed by a morpheme boundary and the verbal noun suffix which is a nonconsonant (i.e. /u/), then the matrix is shunted into P-10 where the preceding nonlong nonconsonant will be lengthened.

e.g. /cuɫ + u/ → [su:ɫu] 'shot'  
/paɫ + u/ → [pa:ɫu] 'condition'

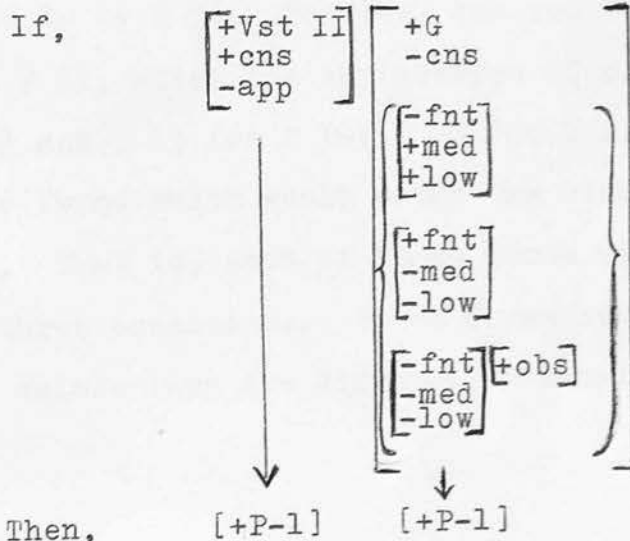
T 9:



i.e. if a matrix consists of a word final sequence of nonfront, medial, low, nonlong, nonconsonant (/a/) and nonfront approximant consonant (/y/), which is preceded by a consonant and a nonconsonant, then it is shunted into P-11 where the final sequence contracts into a front, nonmedial, low and palatal nonconsonant (i.e. [e]).

e.g.	/++ utay ++/	→	[udə]	'kick'
	/++ aray ++/	→	[arə]	'grind'
	/++ kalay ++/	→	[kalə]	'chase'

T 10:



i.e. if a matrix consists of a final nonapproximant consonantal element of a Class II verbal stem which is followed by any one of the initial nonconsonants of a grammatical morpheme: /a/, /i/, /u/ followed by an obstruent, then it is shunted into P-1 (For examples and discussion on this rule and the next rule, see below).

T 11:

If,	$\begin{bmatrix} +\text{lat} \\ -\text{ret} \end{bmatrix} [+ \text{obs}]$
	$\begin{array}{c} \downarrow \qquad \downarrow \\ [+P-1] [+P-1] \end{array}$
Then,	

i.e. if a matrix consists of a nonretroflex lateral followed by an obstruent, then it is shunted into P-1.

The structural descriptions referred to by T 10 and T 11 do not match that of P-1 (see, pp. 271-2 where P-1 is referred to by T 1). However, the sequences referred to in T 10 and T 11, after the application of certain redundancy rules (R 9 and R 13 for T 10; R 13 for T 11), will be converted into forms which would match the structural description of P-1. That is, each of those forms will contain a sequence of three consonants. These forms have no way to enter the P-1 unless they are directed by T-rules. T-rules cannot

refer to the structural descriptions of these forms, because they apply before the redundancy rules. Therefore, as a solution to this problem, T 10 and T 11 are allowed to predict those sequences that would invariably enter P-1 even though their structural descriptions in the underlying level do not correspond to that of P-1.

The following are the examples for T 10:

/vil + a/ → /vil + ka/ → /vil + kka/  
 → [vikka] 'to sell'  
 /poor + a/ → /po:r + ka/ → /po:r + kka/  
 → [po:kka] 'to cover'

The following are the examples for T 11:

/ooɭ + aa + mal ++ poo/ → /o:qa:mal ++ po:/ →  
 [/o:qa:mal ++ ppo:/ → [o:qa:mappo:]  
 'go without running'  
 /ooɭ + in + aal ++ teeɭ + u/ → /o:qina:l ++ te:qu/ →  
 /o:qina:l ++ tte:qu/ → [o:qina:tte:qu]  
 'search if runs'

T 12:

If,

$$\begin{bmatrix} -cns \\ +fnt \\ -med \\ -low \\ +lng \end{bmatrix} + \begin{bmatrix} -cns \\ +lng \end{bmatrix}$$

Then,

$$\begin{bmatrix} +P-12 \end{bmatrix} \quad \begin{bmatrix} +P-12 \end{bmatrix}$$

i.e. if a matrix consists of a front, nonmedial, nonlow, long, nonconsonant which is followed by a morpheme boundary and a long nonconsonant, then it is shunted into P-12 where the first long nonconsonant (i.e. /ii/) will be shortened.

e.g. /paʃi + kkiR + nii + ee/ → [paʃikkiRaniye:]

'do you study '

/va:Nk + in + nii + ee/ → [va:ŋginaniye:]

'did you buy '



## CHAPTER FOUR

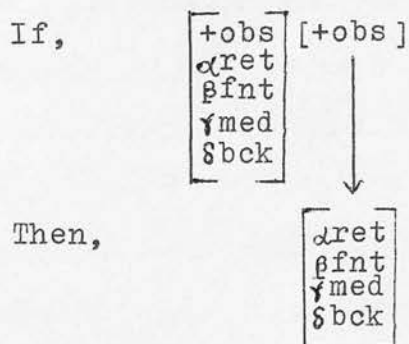
## 4. REDUNDANCY RULES

4.1 Two Kinds of Redundancy Rules

The form in which the individual lexical stems and grammatical morphemes are entered in the lexicon is highly abbreviated. The simplicity criterion (see, 1.12.1) demands that all predictable features be omitted from the dictionary matrices and those omitted features may be supplied by a set of rules. The function of 'filling in' of the omitted features is performed mainly by the redundancy rules. There are two kinds of redundancy rules, namely, segment structure rules which are context free blank filling rules and they apply to segments in isolation; and sequence structure rules which are context sensitive rules and they apply to segments in particular contexts.

The segment structure rules characterize redundancies of isolated segments wherever they occur. Consider for example the nonconsonants. A nonconsonant will acquire the features [+app], [-obs], [-lat] anywhere it occurs in a matrix. These features will be omitted for a nonconsonant in the dictionary entry and they will be introduced by a rule (see, R 1). The sequence structure rules give ~~information~~

information about the kind of phonological redundancies occurring when underlying elements are combined into sequences to form morphemes and phonological words. This new kind of redundancy arises due to sequential constraints. There are three types of sequence structure ~~rules~~. One type of rule fills in those features that are omitted from the dictionary matrices; and these features, otherwise, are present in the dictionary matrices in normal circumstances. An obstruent in normal circumstances is specified for the features retroflex, front, medial and back in the underlying dictionary matrices. But in certain contexts these features can be eliminated from those matrices and they can be introduced by a rule. Consider for example, the following rule (see, R 14 for details):



This rule suggests that a sequence of two obstruents agree in their point of articulation. Thus, whenever this sequence occurs in the underlying forms, those four features can be eliminated for one obstruent. Otherwise, these features are present in the underlying level.

The second type of sequence structure rules introduces features that are never present in any of the underlying matrices. The following rule (see, R 21 for details) suggests that in a sequence of two obstruents, both are noncontinuants and voiceless:

If,  $[+obs][+obs]$

Then,  $\begin{bmatrix} -cnt \\ -vce \end{bmatrix} \quad \begin{bmatrix} -cnt \\ -vce \end{bmatrix}$

To express this sequential constraint, the rule introduces the features continuant and voice which are not assigned to any single obstruent in the underlying level.

The third type of sequence structure rules introduces predictable segments in appropriate contexts. Epenthetic vowel insertions, and geminating consonants are handled by this type of rule. In C and H model, the epenthetic vowel is introduced by a phonological rule. But in the present model of description, the redundancy rules are designed in such a way that they can handle any situations which do not involve mutations or feature changings. Consider for example the following rule (see, R 7 for details):

If,  $([+cns])([+cns][\quad])$   $\begin{bmatrix} +cns \\ +app \\ +fnt \end{bmatrix}$

↓

$\begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix}$  Except

$\begin{bmatrix} +cns \\ +app \\ -fnt \end{bmatrix} [-] \begin{bmatrix} +cns \\ +app \\ +fnt \end{bmatrix}$

This rule suggests that an epenthetic vowel /u/ is introduced when a consonant or a sequence of two consonants is followed by a front approximant consonant; and this rule is inoperative when the preceding consonant is a nonfront approximant. The above rule does not indicate any feature changes or mutations. Therefore, it is natural for the redundancy rule that does not change any feature values to introduce the epenthetic vowel /u/ in the context referred to in the above rule. Further, the advantage of this kind of rule is a considerable amount of saving not only in the underlying matrices but also in the phonological rules.

All three types of sequence structure rules and the segment structure rules contribute to the simplicity of the phonological component. The redundancy rules contribute much to the lexical economy. The sequence structure rule (R 14) given above saves four feature specifications in one of the members of a sequence of two obstruents that occur in each morpheme in the lexicon. Rules of this kind not only minimize the lexical entry by saving a number of features from the underlying matrices, but also they make valid generalizations. In the case of the above rule (i.e. R 14) the sequential constraint involved in the distribution of obstruents in Tamil morphemes is generalized (see, R 14 for a discussion on this point). The goal of this simplicity device, as Harms (1969: 57) observed, is "not to save ink"

but it will lead "to desirable generalizations".

#### 4.2 Levels of Representation

As we noted earlier (see, 1.2(b); 1.10), a level which is called a fully specified systematic phonemic level is not recognized in this work. In C and H's model, a matrix whether it meets the condition of invariance (see, 3.2) or not, has to enter the phonological rules for phonetic realizations. But in the present model, the traffic rules (see, 3.2) decide whether a matrix should enter the P-rules or not. Further, the redundancy rules in the present model are regarded as realization rules which specify phonetic realizations. The majority of the Tamil underlying matrices emerge in their phonetic representations by the application of the redundancy rules alone. In C and H's model, the redundancy rules are conditioned to apply within morpheme boundaries and phonological rules can apply across morpheme boundaries. This distinction is not maintained in this work. Instead, the redundancy rules are allowed to apply across morpheme boundaries and word boundaries. These decisions enable us to make a number of significant generalizations regarding the phonology of Tamil and a considerable amount of saving in the P-rules is also achieved;

Consider for example the following underlying form:

(1) ++ e[ɪ + i ++ pi[ɪ + [+obs][+obs] + aən ++

No traffic rule applies to the above form. Thus, it does not enter the P-rules at all. This form emerges into its phonetic realization by the application of the positive conditions, readjustment rules and redundancy rules alone. Let us examine how they apply to enable the form (1) to reach its phonetic representation. PC 5 specifies that any sequence of two nonconsonants within a morpheme boundary becomes a single unit as a long nonconsonant (see, 254 p. 254). Thus (1) will be converted to (2):

(2) ++ e[ɪ + i ++ pi[ɪ + [+obs][+obs] + a:n ++

RA 1 (i.e. Readjustment rule 1, see, p. 75) specifies that any morpheme boundary that is not referred to by a traffic rule will be deleted. Now, the form in (2) will be converted into (3):

(3) ++ e[ɪi ++ pi[ɪ[+obs][+obs]a:n ++

Apart from other redundancy rules, the form in (3) will be subject to the following redundancy rules mainly: R 13, R 14, R 17, R 21, R 26, R 32 and R 38. Application of these rules will convert the form in (3) into (4) which is the phonetic representation of (1). Among these rules, R 13 geminates the bilabial obstruent /p/ in the above form; R 14 will render the features [+ret], [-fnt], [+med] and



[-bck] which are eliminated in the underlying form for the second retroflex obstruent (/ɭ/); R 17 specifies that the sequence [+obs][+obs] becomes [cc]; R 21 specifies that in any sequence of two obstruents, the first and second members are noncontinuant and voiceless; R 26 specifies that the retroflex obstruent in /piɭi/ is noncontinuant and voiced (i.e. /ɭ/ → [ɖ]); R 32 introduces the feature [+ret] to all the nonconsonants that precede the retroflex consonants; R 38 introduces the feature [-rnd] to all the consonants that precede the nonround nonconsonants. Thus, the resulting form is:

(4) [3ɭɭippɖicca:n]

Note that the word boundaries in (3) are erased at the completion of the R-rules. Thus, the phonetic process by which the underlying form in (1) receives its phonetic representation in (4) brings out the following facts:

- (a) there are only two levels, namely, the underlying form and the phonetic representation; there is no level which is called fully specified systematic phonemic level;
- (b) no phonological rules are needed for underlying forms such as (1);
- (c) redundancy rules apply within and across morpheme and word boundaries.



Brown (1969; 1971) has convincingly argued that the level of output of the realization rules or redundancy rules is not always obviously systematic phonemic even when this is claimed to be the appropriate level. It will become from the example just discussed above and other examples given in Chapter 7, that the majority of underlying forms of Tamil emerge in their phonetic representations by the application of redundancy rules alone. Thus the phonological component of Tamil grammar will consist of only two levels. One is the redundancy-free phonemic level which is the underlying structure and the other is the systematic phonetic level which is the final output of the phonological component, namely, the systematic phonetic representation. The phonological rules in this model are conditioned to apply to those items that are directed by the traffic rules. These items which involve mutations are regarded as causing complications in the phonology. The phonetic representations are reached by the application of redundancy rules which are regarded as realization rules. In many cases the realization rules alone convert the underlying structure into phonetic representation. In certain other cases these rules apply before and after the phonological rules to bring the underlying structure into a phonetic representation. Let us examine one example from the latter. Consider the following underlying form:

(5) ++ eeR + i + i<sub>l</sub> + [+obs] + aən ++

'he has climbed up'

The traffic rule T 6 will mark this matrix to enter the the phonological rules P-4, P-7 and P-8. The boundary markers that are specified by T 6 will not be erased by the readjustment rules. The other appropriate redundancy rules will apply to this matrix and the whole matrix then will be shunted into P-rules. P-4 will delete the second nonconsonant /i/, P-7 will lengthen the remaining /i/ and finally P-8 converts the retroflex obstruents into nonretroflex, nonfront, medial and nonback obstruents (i.e. /ɭɭ/ → [t̪t̪]). The resulting string will be:

(6) [3:Ri:t̪t̪a:n]

This form will be recycled back to the redundancy rules where R 45 will apply and complete the phonetic specification. According to R 45, nonconsonant /i/ that occurs before a nonretroflex, nonfront, medial and nonback obstruent, acquires the feature retracted. This rule can apply only after the application of the P-rules because the alveolar obstruent [t̪] realizes only after the application of P-8. Thus the phonetic representation of the underlying form in (5) will be:

(7) [3:Ri:t̪t̪a:n]

The difference between the redundancy rules and the

phonological rules is shown by the operations they perform. The redundancy rules add features or predictable segments and do not perform any other operations. But the phonological rules are mutation rules. They change any feature that is already assigned. Further, they can delete whatever segments need to be deleted. Since the redundancy rules are allowed to apply across morpheme and word boundaries in this work, it is not proper to call them MS rules which according to Chomsky, Halle and Stanley apply only within morphemes. Therefore, we use the name R (which stands for redundancy or realization) for these rules.

#### 4.3 R-rules Apply Across Morpheme Boundaries and Word Boundaries

Most of the redundancy rules are designed in such a way that they, if necessary, can apply within and across morpheme boundaries and across word boundaries. That is, those rules which are not specified with any boundary markers can apply within and across such boundaries. Consider for example, R 24 (exceptions to this rule are not reproduced below):

If,	[-cns]	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> +obs  -<del>ret</del>  -<del>int</del>  Xmed  +<del>bckk</del> </div>	[-cns]
		↓	
Then,		<div style="border: 1px solid black; padding: 2px; display: inline-block;"> +cnt  -vce </div>	

According to this rule, intervocalic nonretroflex, nonfront, medial or nonmedial, and back obstruent consonant (i.e. either /c/ or /k/) is continuant and voiceless (i.e. /c/ → [s]; /k/ → [x]). There is no boundary feature specified in this rule. Therefore, it can apply within morpheme boundaries, across morpheme boundaries and even across word boundaries. The following will suffice as examples to show how this rule applies irrespective of any morpheme or word boundaries:

- (8) (a) /taki/ → [taxi] 'be warm'  
           /paci/ → [pasi] 'be hungry'
- (b) /muɭuk + iR + an/ → [muɭuxiRaŋ]  
                         'I am bathing'
- /puuc + iR + an/ → [pu:siRaŋ]  
                         'I am smearing'
- (c) /eɭut + in + a ++ katay/ →  
             [eɭudinaxada] 'the story that was  
   written'
- /vaaNk + in + a ++ caamaan/ →  
             [va:ŋginasa:ma:n] 'the thing that was  
   bought'

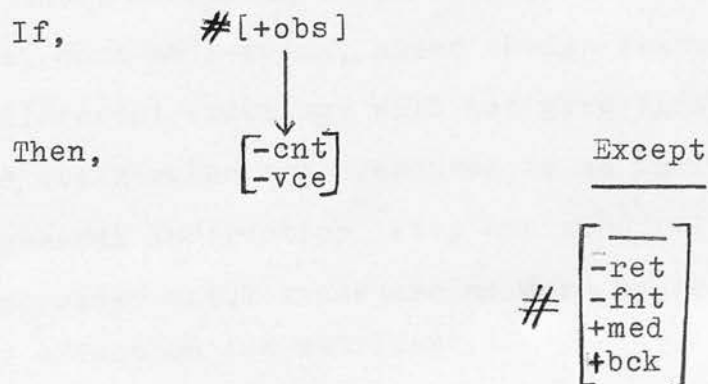
For cases where this rule does not apply across word boundaries, see, examples given after R 24 ( p. 319).

The phonological word boundaries and the sentence boundaries in matrices which do not enter P-rules, are erased

at the completion of the application of R-rules. Even those matrices which enter the P-rules, after the completion of the P-rules, are recycled back to the R-rules with their boundary features. If there are any R-rules to apply to these matrices, then the boundary features are erased after their application. If not, the boundary features are erased and the matrices emerge into their phonetic realizations.

#### 4.4 Exceptions are stated in R-rules

Following Stanley (1967) and Brown (1969; 1971), all the R-rules of the phonology are regarded as set of unordered rules. They reapply until all specifications are complete. But these rules are numbered for convenience of reference. Since R-rules are unordered, exception clauses are given wherever necessary. Consider for example R 22 (a part of the rule is reproduced below):



The rule states that any sentence initial obstruent is noncontinuant and voiceless. If no exception clause is added to this rule, then it will specify the sentence initial obstruent /c/ as noncontinuant and voiceless. But this is not so in the dialect under investigation. This obstruent is always continuant and voiceless in the sentence initial position. Therefore, an exception clause that prevents this rule from applying to /c/ is included. R 23 specifies the sentence initial /c/ as [+cnt, -vce].

As Stanley (1967: 406) pointed out, it is possible, in fact, usual to present the R-rules as an ordered set. Rule B follows rule A in this ordering just in case B refers to feature values inserted by A. However, since R-rules add features only and never change them, this ordering is of rather trivial sort. A non-trivial kind of ordering can be obtained in P-rules which change feature values. If a P-rule K changes the value of a feature q, different results will obtain if a rule affecting feature q is placed before K from those occurring if it is placed after K. If a set of rules, such as R-rules, never change feature values, then different orderings will not give different results. Thus the R-rules are presented as an unordered set with the general instruction 'keep applying rules over and over in any order until there are no more rules which would have any effect on the matrices'.



#### 4.5 R-rules of the Phonology

Let us now present the R-rules of the phonology. They are expressed in the form of if-then conditions (Stanley, 1967). Apart from the phonological information carried by individual segments, the R-rules may refer to information carried by a morpheme as a whole (see, for example, R 9 where the syntactic feature [+Vst II] is referred to). If a syntactic feature is referred to in a rule, then it refers to the whole morpheme which is bound by that syntactic feature. If a column where the syntactic feature is referred to, is followed by any other column, then it should be regarded as the final element of the morpheme which is indicated by the syntactic feature (see, R 9); if it is preceded by any column in a rule, then it should be regarded as the initial element of that morpheme (see, R 11). Whenever examples are given after a rule, the informal alphabetic symbols are used. Only those forms which have reached the final phonetic realizations are enclosed within square brackets; all other forms are enclosed within slant lines. As far as the vowels are concerned, the phonetic symbols used in examples given for rules R 7 to R 29 are not absolutely narrow ones. Only from R 30 to R 45, which in fact deal with the low-level phonetic details of the vowels, have we used possible narrow phonetic symbols.



R 1:

If, [-cns]



Then,

+app
-obs
-lat

i.e. nonconsonants /i, i:, e, e:, u, u:, o, o:, a, a:/  
are also approximants, nonobstruents and non-  
laterals.

R 2:

If, [+obs]



Then,

-nas
-lat

i.e. obstruents /p, t, c, k, t̪ / are redundantly  
nonnasals and nonlaterals.

R 3:

If, [+nas]



Then,

[-lat]

i.e. nasal consonants /m, n, ŋ / are redundantly  
nonlaterals.

R 4:

If, [+ret]



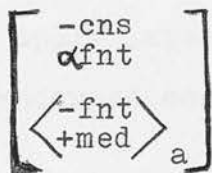
Then,

-fnt
+med
-bck

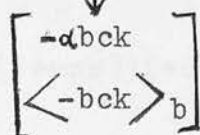
i.e. retroflex consonants /ɭ, ɺ, ɮ, R/ are also non-front, medial and nonback.

R 5:

If,



Then,

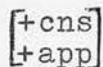


i.e. if a nonconsonant is front (i.e. /i/ or /e/; /i:/ or /e:/), then it is also nonback; if it is non-front (i.e. /u/ or /o/; /u:/ or /o:/), then it is redundantly back; but if a nonconsonant is specified as nonfront and medial (i.e. /a/ or /a:/) then it is nonback.

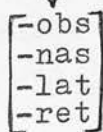
The exception stated within angle brackets is to specify /a/ or /a:/ as a nonback vowel even though it is a nonfront one.

R 6:

If,



Then,



i.e. approximant consonants are redundantly nonobstruents, nonnasals, nonlaterals and nonretroflexes.

The rules R 1 to R 6 are typical segment structure rules (4.1). These rules greatly minimize the entries in the lexicon. They apply irrespective of any contexts in which the segments concerned occur.

R 7:

If,

$$([+cns])[+cns]$$

```
+G
+tns
+cns
+app
+fnt
```

Then,

```
-cns
-fnt
-med
-low
```

Except

```
+cns
+app
-fnt
```

[—]

```
+cns
+app
+fnt
```

i.e. if a front approximant consonant which is a tense morpheme is preceded by a consonant or two consonants, then an epenthetic nonfront, nonmedial and nonlow nonconsonant (i.e. /u/) is inserted in between the approximant and the consonant; but the epenthetic vowel is not inserted if the preceding consonant is a nonfront approximant.

e.g. /ooɪ + v + aən/

→ [o:quva:n]

'he will run'

/katt + v + an/	→	[kattuvan]	'I shall shout'
/peec + v + aa]/	→	[pe:suva:]	'she will scold'
/kiN] + v + an/	→	[kiŋquvan]	'I will dig'
/tuukk + v + anan/	→	[tu:kkuvan]	'I will carry'
/cey + v + inam/	→	[seyvinam]	'they will do'
/paay + v + aan/	→	[pa:yva:n]	'he will jump'

The feature [+G] and [+tns] are included in this rule to restrict the insertion of the epenthetic vowel /u/ to a particular sequence only. That is, a sequence where a front approximant which follows a consonant is a tense morpheme. If it is not a tense morpheme, then the rule is inoperative in instances where a front approximant follows a consonant. This restriction will allow sequences such as:

/veer + vay/	→	[ve:rva:]	'perspiration'
/paar + vay/	→	[pa:rva:]	'sight'

These two verbal nouns are formed from the verbal stems /veer/- and /paar/- respectively without inserting an epenthetic vowel /u/ in between /r/ and /v/.

R 8:

If,            [+cns] [            ] [+nas]  $\begin{bmatrix} -cns \\ +lng \end{bmatrix}$



Then,

$\begin{bmatrix} -cns \\ -fnt \\ +med \\ +low \\ -lng \end{bmatrix}$

i.e. if a consonant is followed by a nasal consonant and a long nonconsonant, then a nonfront, medial, low and nonlong nonconsonant is introduced in between the two consonants.

e.g. /ooɭ + in + naan/	→	[o:ɖina:na:n]
		'I ran'
/paɭ + in + nii/	→	[pa:ɖinani:]
		'you sang'
/kuɭi + kkiR + naan/	→	[kuɖikkiRana:n]
		'I am in the habit of drinking'
/kuɭi + kkiR + nii/	→	[kuɖikkiRani:]
		'you are in the habit of drinking'

R 9:

If,

$$\begin{bmatrix} +Vst & II \\ Xcns \end{bmatrix} \quad \left[ \quad \right] \quad \begin{bmatrix} +G \\ -imp \\ -cns \end{bmatrix}$$

Then,

```
+obs
-ret
-fnt
-med
+bck
```

i.e. if the final element (either [+cns] or [-cns]) of a Class II verbal stem is followed by a non-imperative grammatical morpheme whose initial element is a nonconsonant, then a velar obstruent is introduced between the verbal stem and the suffix. There are three verbal stems which can be regarded as exceptions to this rule. They are /poo/- 'go', /noo/- 'pain', /vee/- 'boil'. These three are not Class II verbal stems; but as far as the application of the above rule is concerned, these three stems behave as any other Class II verbal stem. That is velar obstruent is introduced in between these stems and non-imperative suffixes. These three exceptional forms will be specified to this effect in the lexicon.

e.g. /eɭu + a/ → /eɭuka/ → [eɭukka]  
'to take'

/aɭa + a/ → /aɭaka/ → [aɭakka]  
'to measure'

/a<sub>l</sub>a + a/ → /a<sub>l</sub>aka/ → [a<sub>l</sub>akka]  
'to measure'



/kaṭi + utu/ → /kaṭikudu/ → [kaṭikkudu]

'It is biting'

/paar + a/ → /pa:rka/ → [pa:kka]

'to see'

/nil + inam/ → /nilkinam/ → [nikkinam]

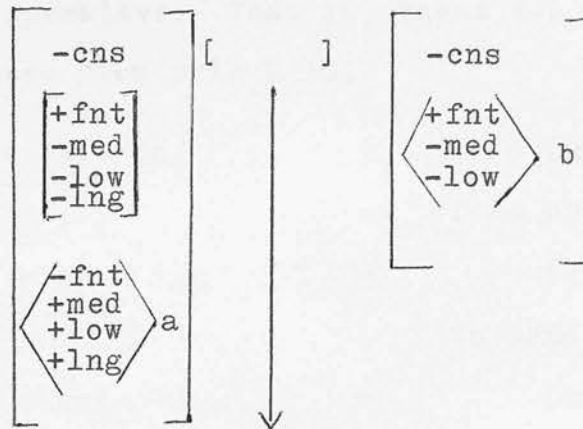
'they are standing'

/tay + utu/ → /taykudu/ → [taykkudu]

'It is stitching'

R 10:

If,



Then,

$\begin{bmatrix} +cns \\ +app \\ -fnt \end{bmatrix}$

Except

$\left\{ \begin{array}{l} \begin{bmatrix} +Vst \ II \\ -cns \end{bmatrix} \begin{bmatrix} - \end{bmatrix} \begin{bmatrix} -cns \end{bmatrix} \\ + \begin{bmatrix} -cns \\ +fnt \\ -med \\ -low \\ -lng \end{bmatrix} \begin{bmatrix} - \end{bmatrix} + \begin{bmatrix} -cns \end{bmatrix} \end{array} \right\}$

i.e. if a nonconsonant /i/ is followed by any nonconsonant, then a nonfront approximant consonant is introduced in between them; but if the preceding ~~non~~consonant is a nonfront, medial, low and long one (i.e. /aa/), then the following nonconsonant must be a front, nonmedial and nonlow one (i.e. /i/). If the preceding nonconsonant /i/ is a final element of a Class II verbal stem or if the preceding nonconsonant /i/ is preceded and followed by morpheme boundaries, then the rule is inoperative. That is, these two instances are exempted from rule R 10.

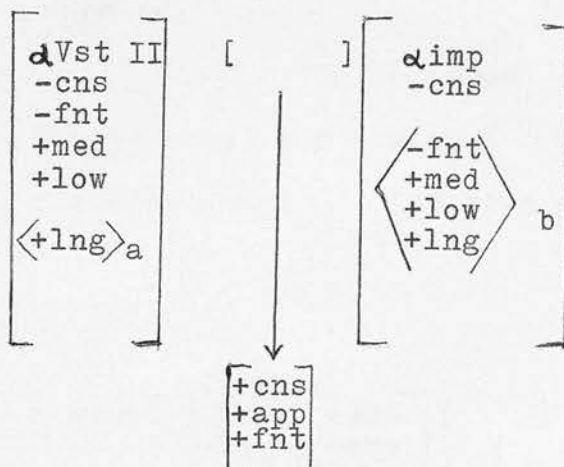
e.g. /uri + iR + an/	→	[uriyiRan]
		'I am undressing'
/kuni + a/	→	[kuniya]
		'to bend'
/muRi + um/	→	[muRiyum]
		'it will break'
/ve[ɪ] + i ++ e[u/	→	[ve[ɪ]iye[u]
		'cut and take'
/ku[ɪ] + aa + inam/	→	[kuɪ <del>ik</del> aa:yinam]
		'they will not drink'

The following are the instances which are exempted from R 10:

/kuṭi + a/ → [kuḍikka]  
 'to drink'  
 /eṭu + a/ → [eḍukka]  
 'to take'  
 /ooṭ + i + iṭ + [+obs] + aan/ →  
 [o:ḍi:tta:n] 'he has run off'  
 /veṭṭ + i + iṭ + [+obs] + aan/ →  
 [veṭṭi:tta:n] 'he has cut off'

R 11:

If,



Then,

i.e. if a nonfront, medial and low nonconsonant is followed by another consonant, then a front approximant consonant is introduced in between them; but if the preceding nonconsonant is a final member of a Class II verbal stem, then the following nonconsonant can only be an initial

member of an imperative grammatical morpheme;  
 if the preceding nonconsonant is a long one  
 (i.e. /aa/), then the following nonconsonant  
 must be a nonfront, medial, low and long one  
 (i.e. /aa/).

e.g. /naʔa + um/ → [naqavum]  
 'walk' (imp.)

/var + aa + aam/ → [vara:va:m]  
 'it seems that she  
 won't come'

/tiRa + um/ → [tiRavum]  
 'open' (imp.)

/iru + [+nas][+obs] + a + uʔana/ →  
 [irundavudana] 'as soon as seated'

R 12:

If,  $++ ([+cns]) \begin{bmatrix} -cns \\ -lng \end{bmatrix}$

$\begin{bmatrix} +cns \\ -obs \\ [+app] \\ [+nas] \\ [+lat] \\ \alpha ret \\ \beta fnt \\ \gamma med \\ \delta bck \end{bmatrix} [ \quad ] [-cns]$

Then,

$\begin{bmatrix} +cns \\ -obs \\ [+app] \\ [+nas] \\ [+lat] \\ \alpha ret \\ \beta fnt \\ \gamma med \\ \delta bck \end{bmatrix}$

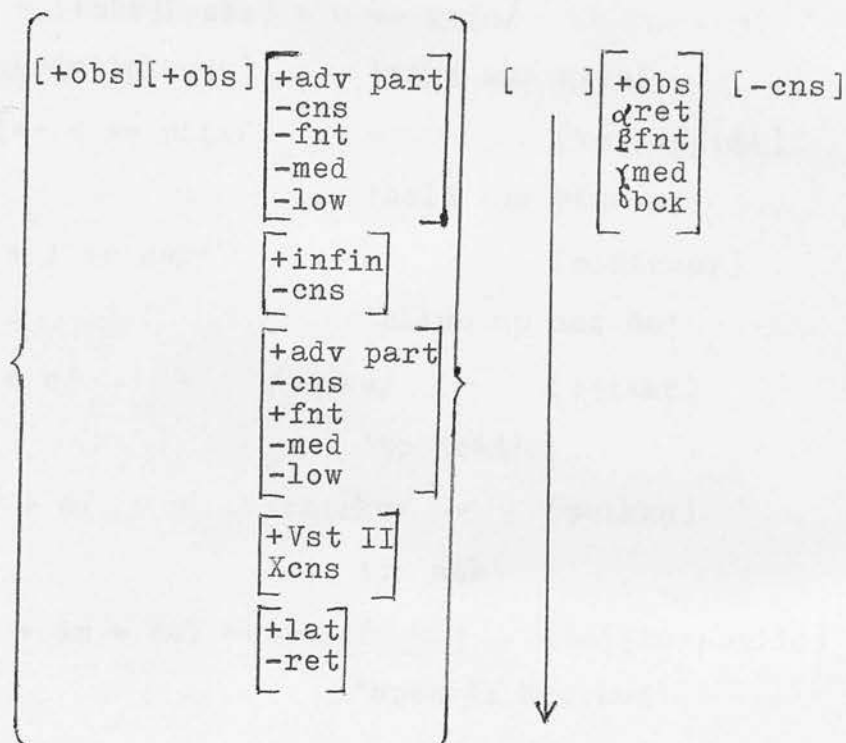
i.e. if a nonobstruent is preceded by a sequence of ++ [C]V and followed by any nonconsonant, then it is geminated.

e.g. /cey + iR + an/	→	[seyyiRan]
		'I am doing'
/toy + utu/	→	[toyyudu]
		'it becomes loose'
/tin + iR + an/	→	[tinniRan]
		'I am eating'
/en + iR + an/	→	[en̩iRan]
		'I am counting'
/col + iR + an/	→	[solliRan]
		'I am saying'
/ta + iR + an/	→	[ta̩iRan]
		'I am pushing'

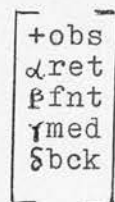
R 13: (see, p. 308)

R 13:

If,



Then,



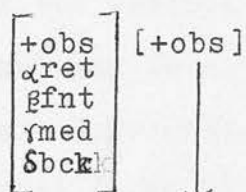
i.e. if an obstruent is followed by a nonconsonant and preceded by any one of the following: an adverbial participial suffix which is /u/ and preceded by a sequence of two obstruents; an infinitive suffix which is a nonconsonant; an adverbial participial suffix which is /i/; a final element of a Class II verbal stem; a nonretroflex lateral, then the obstruent is geminated.



e.g. /etu + [+obs][+obs] + u ++ kuu/ →  
           [equttukkuu]           'take and give'  
 /katta+ a ++ pii/ →           [kattappii]  
                                   'hold for binding'  
 /eeR + i ++ cey/ →           [e:Riccey]  
                                   'climb up and do'  
 /ati + a/ →   /aqika/ →   [aqikka]  
                                   'to beat'  
 /paar + a/ →   /pa:rka/ →   [pa:kka]  
                                   'to see'  
 /tatl + in + aal ++ tiRa/ →   [tatina:ttiRa]  
                                   'open if knocked'

R 14:

If,



Then,



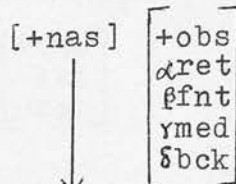
i.e. in a sequence of two obstruents, the second member agrees with the first member in all its feature specifications.

There are many verbal stems and grammatical morphemes which have sequences of two obstruent consonants. In lexical entries, these two obstruents need not be fully specified. Some features of one of the obstruents can be eliminated. Consider for example, the verbal stem /katt/- 'shout'. The last two obstruents of this stem need not be specified for the features retroflex, front, medial and back. The penultimate obstruent will only be specified for these features. The last obstruent will acquire these features by R 14.

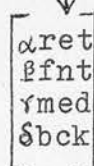
This rule makes a valid generalization of the distribution of obstruents in the verbal forms of the Ceylon spoken Tamil. There are no instances of heterogenic obstruent cluster formations in the dialect under investigation. If a sequence of two obstruents occurs in a morpheme, then that sequence can only be a homorganic cluster. Thus, obstruent clusters like [kt], [pt], [st] etc. will never occur in the verbal forms of Ceylon spoken Tamil.

R 15:

If,



Then,



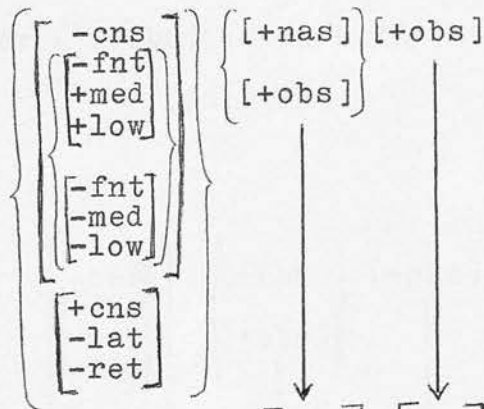
i.e. if a sequence of nasal plus obstruent occurs,  
then the preceding nasal assimilates to the  
point of articulation of the following obstruent.

e.g. /N/ as in /naNp/- 'believe' → [m]  
                   /tiruNt/- 'improve' → [n]  
                   /noNɫ/- 'limb' → [ɲ]  
                   /koNc/- 'kiss' → [p]  
                   /toNk/- 'hang' → [ŋ]

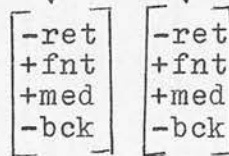
As pointed out in 1.12.2 (p. 100), the nasal element before  
an obstruent is represented by the symbol /N/. This nasal  
element will be realized as one of the following phonetic  
segments: [m, n, ɲ, p, ŋ] after the application of this  
rule.

R 16:

If,



Then,



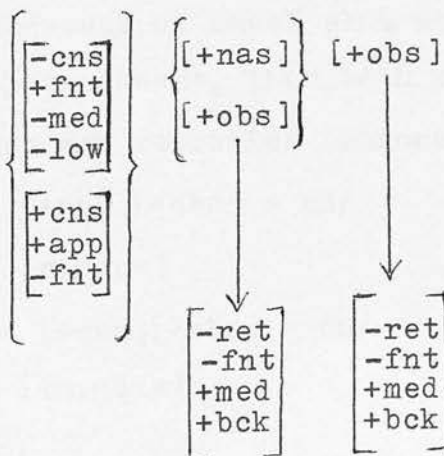
i.e. if a sequence of either nasal plus obstruent or two obstruents is preceded by a nonconsonant /a/ or /u/, or by a consonant /r/, then both members of the sequence are nonretroflex, front, medial and nonback (i.e. [tt]).

e.g. /na[a + [+nas][+obs] + an/ → [naqandan]  
 'I walked'  
 /na[a + [+obs][+obs] + iR + an/ → [naqattiRan]  
 'I am conducting'  
 /vi[u + [+nas][+obs] + an/ → [vi]undān]  
 'I fell'  
 /e[u + [+obs][+obs] + an/ → [equttan]  
 'I took'  
 /ceer + [+nas][+obs] + an/ → /se:rndan/  
 → [se:ndan] 'I joined'  
 /paar + [+obs][+obs] + an/ → /pa:rttan/  
 → [pa:ttan] 'I saw'

R 17:

If,

Then,



i.e. if a sequence of either nasal plus obstruent or two obstruents is preceded by either a nonconsonant /i/ or by a consonant /y/, then both members of that sequence are nonretroflex, nonfront, medial and back (i.e. [ɲ] and [ɕ]).

e.g. /ari + [+nas][+obs] + an/ → [aripɲan]  
 'I cut'  
 /paɔy + [+nas][+obs] + an/ → /pa:yɲɲan/ →  
 [pa:ɲɲan] 'I jumped'  
 /kaɽi + [+obs][+obs] + an/ → [kaɽicɕan]  
 'I bit'  
 /teey + [+obs][+obs] + an/ → /te:yɕɕan/ →  
 [te:cɕan] 'I rubbed'

R 18:

If,           [+lat][+nas][+obs]  
                   ↓           ↓  
 Then,           [+ret][+ret]

i.e. if a sequence of nasal plus obstruent follows a lateral consonant, then both members of that sequence are retroflex consonants.

e.g. /nil + [+nas][+obs] + an/ → /nilɳɳan/ →  
 [nilɳɳan] 'I stood'  
 /taaɽ + [+nas][+obs] + an/ → /ta:ɽɳɳan/ →  
 [ta:ɳɳan] 'I drowned'

R 19:

If,

$$\begin{bmatrix} +lat \\ \alpha_{ret} \end{bmatrix} \quad [+obs][+obs]$$

Then,

$$\begin{bmatrix} \alpha_{ret} \\ -\alpha_{fnt} \\ +med \\ -bck \end{bmatrix} \quad \begin{bmatrix} \alpha_{ret} \\ -\alpha_{fnt} \\ +med \\ -bck \end{bmatrix}$$

i.e. if a sequence of two obstruents is preceded by a retroflex lateral or by a nonretroflex lateral, then, both members of that sequence will be either retroflex consonants or nonretroflex, front, medial and nonback consonants respectively.

e.g. /kee] + [+obs][+obs] + an/ → /ke:ʎʎan/ →

[ke:ʎʎan] 'I asked'

/vil + [+obs][+obs] + an/ → /vilttan/ →

[vittan] 'I sold'

R 20:

If,

$$\begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \quad [+obs]$$

Then,

$$\begin{bmatrix} -ret \\ +fnt \\ +med \\ -bck \end{bmatrix}$$

i.e. if an obstruent is preceded by a nonfront, non-

nonmedial, nonlow nonconsonant, then it is a nonretroflex, front, medial and nonback consonant.

e.g. /uɭu + [+obs] + an/ → [uɭudan]  
 'I ploughed'  
 /aɭu + [+obs] + an/ → [aɭudan]  
 'I cried'

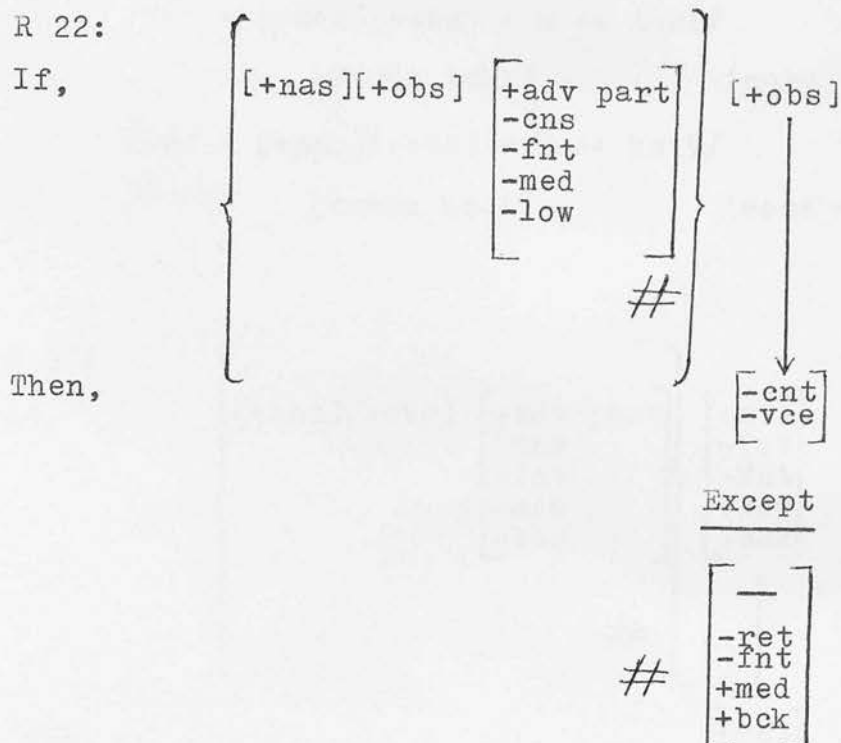
R 21:

If,                    [+obs] [+obs]  
                          ↓            ↓  
 Then,                [-cnt] [-cnt]  
                          [-vce] [-vce]

i.e. in any sequence of two obstruents, the first and second members are noncontinuant and voiceless.

Noncontinuant voiceless phonetic obstruents that are realized by the application of this rule are: [p, t, ɭ, c, k]. This rule can be regarded as a valid generalization about the distribution of obstruents in Ceylon spoken Tamil. This rule, while allowing two noncontinuant voiceless obstruents to cooccur, denies any possibility of two voiced obstruents cooccurring or any sequence of either voiced and voiceless or continuant and noncontinuant obstruents cooccurring in Tamil.





i.e. if an obstruent is preceded either by an adverbial participial suffix /u/ which is preceded by a sequence of nasal plus obstruent; or by a sentence boundary, then it is noncontinuant and voiceless; but if that obstruent is nonretroflex, nonfront, medial and back, then this rule is inoperative on it.

e.g.	/paṭi/	→	[paṭi]	'study'
	/taṛi/	→	[taṛi]	'chop'
	/kaṭi/	→	[kaṭi]	'bite'
	/var + [+nas][+obs] + u ++ paṭi/	→		
	[vandu paṭi]			'come and study'

/var + [+nas][+obs] + u ++ taRi/ →  
 [vandu taRi] 'come and chop'  
 /var + [+nas][+obs] + u ++ kaʎi/ →  
 [vandu kaʎi] 'come and bite'

R 23:

If,

$$\left\{ \begin{array}{l} [+nas][+obs] \left[ \begin{array}{l} +adv \text{ part} \\ -cns \\ -fnt \\ -med \\ -low \end{array} \right] \left[ \begin{array}{l} +obs \\ -ret \\ -fnt \\ +med \\ +bck \end{array} \right] \end{array} \right\} \begin{array}{c} \# \\ \downarrow \end{array}$$

Then,

$$\left[ \begin{array}{l} +cnt \\ -vce \end{array} \right]$$

i.e. if nonretroflex, nonfront, medial and back obstruent is preceded either by an adverbial participial suffix /u/ which is preceded by a sequence of nasal plus obstruent; or by a sentence boundary, then it is continuant and voiceless.

e.g. /ciri/ → [siri] 'laugh'  
 /camay/ → [same] 'cook'  
 /var + [+nas][+obs] + u ++ ciri/ →  
 [vandu siri] 'come and laugh'  
 /var + [+nas][+obs] + u + camay/ →  
 [vandu same] 'come and cook'

R 24:

If,

$$[-\text{cns}] \begin{bmatrix} +\text{obs} \\ -\text{ret} \\ -\text{fnt} \\ \text{Xmed} \\ +\text{bck} \end{bmatrix} [-\text{cns}]$$


Then,

$$\begin{bmatrix} +\text{cnt} \\ -\text{vce} \end{bmatrix}$$
Except

$$\left\{ \begin{array}{l} \begin{bmatrix} +\text{obs} \\ +\text{nas} \end{bmatrix} \begin{bmatrix} +\text{obs} \end{bmatrix} \begin{bmatrix} +\text{adv part} \\ -\text{cns} \\ -\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix} \\ \begin{bmatrix} +\text{infin} \\ -\text{cns} \end{bmatrix} \\ \begin{bmatrix} +\text{adv part} \\ -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix} \\ \begin{bmatrix} +\text{Vst II} \\ -\text{cns} \\ -\text{lng} \end{bmatrix} \\ \begin{bmatrix} +\text{lat} \\ -\text{ret} \end{bmatrix} \end{array} \right\} \begin{bmatrix} +\text{obs} \\ -\text{ret} \\ -\text{fnt} \\ \text{Xmed} \\ +\text{bck} \end{bmatrix} [-\text{cns}]$$

i.e. intervocalic nonretroflex, nonfront, nonmedial or medial and back obstruent consonant is continuant and voiceless; but if the preceding nonconsonant is an adverbial participial suffix /u/ preceded by a sequence of two obstruents or a

nasal plus obstruent; or if the preceding non-consonant is an infinitive suffix /ā/; or if the preceding nonconsonant is an adverbial participial suffix /i/; or if the preceding nonconsonant is a final element of a Class II verbal stem, then this rule is inoperative.

e.g. /naci/ → [nasi] 'squeeze'  
 /puuc + iR + an/ → [pu:siRan]  
 'I am smearing'  
 /iru + [+nas][+obs] + u ++ col + u/ →  
 [irundu sollu] 'sit down and tell'  
 /tar + [+nas][+obs] + a ++ caamaan/ →  
 [tanda sa:ma:n] 'the thing that was given'  
 /toki/ → [taxi] 'be very  
 warm'  
 /mu]uk + iR + an/ → [mu]uxiRan]  
 'I am bathing'  
 /ku]u + [+obs][+obs] + a ++ kaacu/ →  
 [ku]utta xa:su] 'money that was given'

Examples for the exceptions referred to in this rule can be found below the redundancy rules R 13 and R 23.

Since there are many exceptions stated in this rule, one may legitimately ask whether there is any case here for ordered rules. It is true such an attempt may simplify the present case. But if we introduce ordering in this rule, then it should be insisted for all the redundancy

rules. Such an attempt will not in any way help us because one cannot give sufficient reason for ordering R 4, for example, before or after R 3 (see, Stanley, 1967: 406, for discussion in favour of an unordered set of redundancy rules).

Gemination or nongemination of the initial obstruents of phonological words ~~can~~ be generalised only with reference to grammatical categories and with some phonological features.<sup>1</sup> We have made all possible restrictions with regard to the gemination of obstruents (see, R 13), thus generalization regarding nongemination of obstruents is easily made with reference to rule R 13. The present rule and the next one can be regarded as generalizations on nongemination of obstruents. One straightforward generalization is that any obstruent that is followed by a nonconsonant and preceded by an adjectival participle (i.e. /a/) is not geminated, while any obstruent that is followed by a nonconsonant and preceded by an infinitive suffix (i.e. /a/) is geminated. Among the adverbial participial suffixes, if /i/ is followed by an obstruent and nonconsonant, then the obstruent is geminated; if /u/ is preceded by a sequence of two obstruents and followed by an obstruent and a nonconsonant, then the obstruent is geminated (see, R 13); but if the adverbial participle /u/ is preceded by a sequence of nasal

---

1. The author is indebted to S.Vithiananthan and A.Velupillai for drawing his attention to some of the phonological features which either restrict or allow gemination (personal communication).

plus obstruent and followed by an obstruent, then the obstruent is not geminated (see, R 22 and R 23).

R 25:

If,

[-cns]  $\begin{bmatrix} +\text{obs} \\ -\text{ret} \\ +\text{fnt} \\ \alpha\text{med} \\ -\text{bck} \end{bmatrix}$  [-cns]



Then,

$\begin{bmatrix} -\alpha\text{cnt} \\ +\text{vne} \end{bmatrix}$

Except

$\left\{ \begin{array}{l} \begin{bmatrix} +\text{obs} \\ +\text{nas} \end{bmatrix} \begin{bmatrix} +\text{obs} \end{bmatrix} \begin{bmatrix} +\text{adv part} \\ -\text{cns} \\ -\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix} \begin{bmatrix} +\text{infin} \\ -\text{cns} \end{bmatrix} \\ \begin{bmatrix} +\text{adv part} \\ -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix} \\ \begin{bmatrix} +\text{Vst II} \\ -\text{cns} \\ -\text{lng} \end{bmatrix} \end{array} \right\} \begin{bmatrix} +\text{obs} \\ -\text{ret} \\ +\text{fnt} \\ \alpha\text{med} \\ -\text{bck} \end{bmatrix} [-\text{cns}]$

i.e. if intervocalic single obstruent is nonretroflex, front, medial and/<sup>non-</sup>back, then it is noncontinuant and voiced; if it is nonretroflex, front, nonmedial

and nonback, then it is continuant and voiced;  
the exceptional clause is same as that of the  
previous rule (i.e. R 24).

e.g. /mati/<sup>2</sup> → [madi] 'respect'  
 /uut + iR + an/ → [u:diran] 'I am blowing'  
 /tar + [+nas][+obs] + a ++ tiRappu/ →  
 [tanda diRappu] 'the key that was given'  
 /apakari/<sup>3</sup> → [aβaxari] 'snatch'  
 /aɭu + [+obs] + a ++ piɭay/ →  
 [aɭuda βiɭε] 'the child who cried'

R 26:

If,

$$\begin{bmatrix} -cns \\ +obs \\ +ret \end{bmatrix}$$

Then,

-cnt  
+vce

i.e. if an intervocalic single obstruent is retroflex, then it is noncontinuant and voiced.

2. There is a free variation between [d] and [ð]. But the former seems to be the most frequent variant.
3. There are only two verbal stems that have single /p/ in intervocalic position. One is /upacari/ 'entertain' which has a voiceless plosive, the other is /apakari/

(continued)



e.g. /paṭi/	→	[paṭi]	'study'
/ooṭ + iR + an/	→	[o:ṭiRan]	'I am running'
/toṭ + v + an/	→	[toṭuvan]	'I will touch'
/muuṭ + aa + ta/	→	[mu:ṭa:da]	'do not shut'

R 27:

If,                    [+nas][+obs][-cns]

Then,

↓  
[-cnt]  
[+vce]

i.e. an obstruent preceded by a nasal and followed  
by a nonconsonant is noncontinuant and voiced.

e.g. /p/ in /naNp + iR + an/                    →    [b]

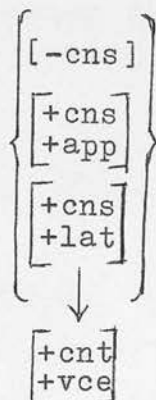
which has a voiced fricative. But both are of Sanskrit origin. No rule which specifies the bilabial plosive as a voiceless one in [upasari] is given in this description. This exceptional case has to be fully specified in the lexicon.

If we try to formulate a rule for this single lexical item, then the number of symbols that will be used in such a rule will be more than one.

/t/ in /tiruNt + iR + an/	→	[d]
/ɭ/ in /noNɭ + iR + an/	→	[ɖ]
/c/ in /koNc + iR + an/	→	[j]
/k/ in /toNk + iR + an/	→	[g]

R 28:

If,



Then,

i.e. nonconsonants /i, ii, e, ee, u, uu, o, oo, a, aa/, approximant consonants /v, y/ and lateral consonants /l, ɭ/ are continuant and voiced.

R 29:

If,



Then,

i.e. nonapproximant, nonobstruent, nonnasal and nonlateral consonants /r, R/ and nasal consonants /m, n, ɳ/ are noncontinuant and voiced.

R 30:

If,  $[+nas][-cns]$

↓

Then,  $[+nas]$

i.e. if a nonconsonant follows a nasal consonant,  
then it acquires the feature nasal.

e.g.	/maŋa/	→	[mãŋã]	'smell'
	/manni/	→	[mãnnĩ]	'pardon'
	/ninay/	→	[nĩnẽ]	'think'
	/nakk/	→	[nãkk]	'lick'
	/kuni/	→	[kunĩ]	'bend'

R 31:

If,  $([-nas][-cns][+cns])$

↓

Then,  $[-nas]$

i.e. if a nonconsonant follows a nonnasal consonant  
and precedes any consonant, then it is redundantly  
nonnasal; also if it is an initial element and  
followed by any consonant, then it is redundantly  
nonnasal.

R 32:

If,

$$\begin{array}{c} [-\text{cns}] \quad \boxed{+\text{cns}} \\ \downarrow \quad \boxed{+\text{ret}} \end{array}$$

Then,

$$[+\text{ret}] \quad +\text{ret}$$

i.e. a nonconsonant preceding a retroflex consonant  
acquires the feature retroflex.

e.g. /tiɭɭ + u/	→	[tɨɭɭw]	'scold'
/tiiɭɭ + u/	→	[tɨ:ɭɭw]	'sharpen'
/keɭ + u/	→	[kɜɖw]	'spoil'
/keeɭ/	→	[kɜ:ɭ]	'ask'
/kuɭɭ + u/	→	[kɜɭɭw]	'cuff on head'
/kuuɭɭ + u/	→	[kɜ:ɭɭw]	'sweep'
/veruɭɭ + u/	→	[verɰɭɭw]	'frighten'
/oɭɭ + u/	→	[ɸɭɭw]	'paste'
/ooɭ + u/	→	[o:ɖw]	'run'
		+	
/kaɭɭ + u/	→	[kɛɭɭw]	'bind'
/kaaɭɭ + u/	→	[kɛ:ɭɭw]	'show'

Note that vowels in [ ] are not strictly speaking shown  
as retroflex, but as centered. The phonetic symbols used  
to characterise the nonconsonants which acquired the feature  
retroflex, ~~are~~ more or less express the quality of retraction

in the case of the front vowels; express the quality of advancing in the case of the back vowels; and in the case of the central low vowel /a/, the symbol expresses the quality of raising. Further phonetic details of these symbols and those that are used in the following rules can be found in Chapter 6.

R 33:

If,  $([+cns])[-cns][-ret]$

Then,  $[-ret]$

i.e. if a nonconsonant precedes a nonretroflex consonant, then it is nonretroflex; if it is preceded by any consonant and followed by a nonretroflex consonant, then it is nonretroflex.

e.g.	/acay/	→	[asɛ]	'shake'
	/katt + u/	→	[kattw]	'shout'
	/pin + a/	→	[pinne]	'to knit'

R 34:

If,

$$\begin{bmatrix} -cns \\ -fnt \\ -med \end{bmatrix}$$

↓

Then,

$$\begin{bmatrix} +rnd \end{bmatrix}$$

Except

++ (C)V(V)C(C)  $\begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix}$

i.e. a nonfront, nonmedial, nonconsonant is also a rounded one except when that nonconsonant is a nonlow one and it is in the second syllable.

e.g.	/kol + a/	→	[kollə]	'to kill'
	/to <sub>l</sub> + an/	→	[tɔ <sub>l</sub> an]	'touch' (imp.)
	/kutt + a/	→	[kuttə]	'to punch'
	/ku <sub>ɪ</sub> i/	→	[ku <sub>ɪ</sub> i]	'drink' (imp.)

Examples for the exception clause can be found below the next rule.

R 35:

If,  $++ (C)V(V)C(C) \begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix}$

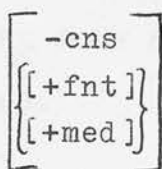
Then,  $\downarrow$   
 $[-rnd]$

i.e. a nonfront, nonmedial, nonlow nonconsonant in the second syllable of a word is a nonrounded one.

e.g.	/ett + u/	→	[ettu]	'lift'
	/iru/	→	[iru]	'sit' (imp.)
	/mu <sub>l</sub> uk + a/	→	[mu <sub>l</sub> uxə]	'to bathe'
	/kuluNk + [+obs] + a/	→	[kuluk <sub>k</sub> ə]	
				'to shake'

R 36:

If,



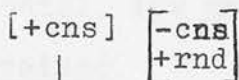
Then,

[-rnd]

i.e. either front or medial nonconsonants are non-rounded ones.

R 37:

If,



Then,

[+rnd]

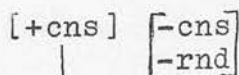
i.e. all consonants that precede rounded nonconsonants acquire the feature round.

e.g.	/ku <u>ɭ</u> u/	→	[k <sub>ɰ</sub> u <sub>ɰ</sub> ]	'give'
	/to <u>ɭ</u> + u/	→	[t <sub>ɰ</sub> o <sub>ɰ</sub> ]	'touch'
	/co <u>ɭ</u> ri/	→	[s <sub>ɰ</sub> o <sub>ɰ</sub> ri]	'scratch'
	/pu <u>ɭ</u> i/	→	[p <sub>ɰ</sub> u <sub>ɰ</sub> i]	'taste sour'

Note that the phonetic symbol that represents the quality of roundness in consonants is employed only in the above examples and it is not employed anywhere else.

R 38:

If,



Then,

[-rnd]



i.e. a consonant that precedes a nonrounded non-consonant does not acquire the quality of roundness.

R 39:

If,

$$\begin{bmatrix} -\text{cns} \\ -\text{med} \\ +\text{low} \end{bmatrix}$$


Then,

[+raised]

i.e. all nonmedial, low nonconsonants acquire the feature raised.

The vowel sounds in the dialect under investigation can be illustrated with the following two-dimensional matrix:

	Front	Central	Back
High	i, ii,		u, uu,
mid	e, ee,		o, oo,
low		a, aa.	

Table 4.1

But in order to distinguish them in the underlying level, the three features, namely, front, medial, and low seem to be adequate. An examination of the classificatory matrix presented in 1.12.3 (Table 1.2, p. 102) reveals that the

mid-vowels (i.e. e, ee, o, oo ) in Table 4.1 are characterized as [+low] vowels. In order to characterize their true phonetic quality, the rule R 39 is needed in the grammar.

R 40:

If,

++ (C)

$\begin{bmatrix} -\text{cns} \\ -\text{fnt} \\ +\text{med} \\ +\text{low} \end{bmatrix}$



$\begin{bmatrix} +\text{cns} \\ \begin{bmatrix} +\text{lat} \\ -\text{ret} \end{bmatrix} \\ \begin{bmatrix} -\text{lat} \\ -\text{ret} \end{bmatrix} \\ \begin{bmatrix} +\text{app} \\ -\text{fnt} \end{bmatrix} \end{bmatrix}$

Then,

[+advanced]

Exeept

$\begin{bmatrix} \text{---} \\ -\text{cns} \\ +\text{med} \\ +\text{low} \end{bmatrix} \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} ++$

i.e. a nonfront, medial, low nonconsonant occurring in the first syllable and which is followed by any one of the following consonants /l, r, y/, acquires the feature advanced except when it is followed by /y/ in the word final position.

e.g. /alaNp + u/	→	[aləmbu]	'wash'
/kala/	→	[kalə]	'mix'
/aray/	→	[arə]	'grind'
/ari/	→	[ari]	'sift'
/ayar/	→	[ayer]	'sleep'
/mayaNk + u/	→	[mayəngu]	'faint'

R 41:

If,            ++ (C)V(V)C(C)     $\begin{bmatrix} -\text{cns} \\ -\text{fnt} \\ +\text{med} \\ +\text{low} \\ -\text{lng} \end{bmatrix}$      $\begin{bmatrix} +\text{cns} \\ -\text{ret} \end{bmatrix}$

Then,

↓  
[+raised]

Except

$\begin{bmatrix} - \\ -\text{cns} \\ -\text{fnt} \\ +\text{med} \\ +\text{low} \\ -\text{lng} \end{bmatrix}$      $\begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix}$     ++

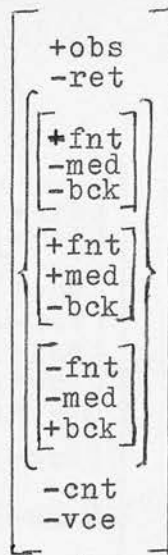
i.e. a nonfront, medial, low, nonlong, nonconsonant which is not a member of the first syllable and which precedes an optional nonretroflex consonant, acquires the feature raised except when it occurs before /y/ in the word final syllable. This means

the underlying /a/ realizes as [ə] in the word final position; in the medial position when it precedes a nonretroflex consonant.

e.g.	/kaṭa/	→	[kʌd̪ə]	'cross'
	/paraṽ + a/	→	[parəvə]	'to spread'
	/uut + a/	→	[u:də]	'to blow'
	/var + an/	→	[varən]	'I will not come'
	/kavani/	→	[kavəni]	'observe'

R 42:

If,



Then,

[+asp]

i.e. noncontinuant, voiceless, nonretroflex obstruents  
/p, t, k/ acquire the feature aspiration.

e.g. /kaɭɭ + u/	→	[k <sup>h</sup> <sub>Δ</sub> ɭɭ <sup>w</sup> ]	'bind'
/nakk + a/	→	[nakk <sup>h</sup> <sub>e</sub> ]	'to lick'
/piɭi/	→	[p <sup>h</sup> <sub>i</sub> ɭi]	'catch'
/paɭi + pp + an/	→	[p <sup>h</sup> <sub>Δ</sub> ɭipp <sup>h</sup> <sub>ən</sub> ]	'I will study'
/toNk + u/	→	[t <sup>h</sup> <sub>oŋ</sub> g <sup>w</sup> ]	'hang'
/katt + a/	→	[k <sup>h</sup> att <sup>h</sup> <sub>e</sub> ]	'to shout'

A cursory glance at the kymographic tracings that are presented in Chapter 6 will <sup>show</sup> <sub>^</sub> the presence of a slight aspiration in the obstruent consonants /p/, /t/ and /k/. The phonetic symbol that represents the quality of aspiration in the noncontinuant and voiceless obstruents, is employed only in the above examples.

R 43:

If,

$$\left\{ \begin{array}{l} \left[ \begin{array}{l} +\text{obs} \\ +\text{ret} \end{array} \right] \\ \left[ \begin{array}{l} +\text{obs} \\ -\text{ret} \\ -\text{fnt} \\ +\text{med} \\ +\text{bck} \end{array} \right] \\ [-\text{obs}] \\ [-\text{cns}] \end{array} \right\}$$



Then,

[-asp]

i.e. retroflex obstruent (/ɭ/); nonretroflex, nonfront, medial and back obstruent (/c/); all nonobstruents; all nonconsonants do not acquire the quality of

aspiration.

R 44:

If,

$$\begin{bmatrix} +cns \\ +med \\ +bck \end{bmatrix}$$


Then,

[+palatal]

i.e. all medial and back consonants (/c/, /y/) acquire palatal as a redundant feature.

R 45:

If,

[-cns]

$$\begin{bmatrix} +obs \\ -ret \\ -fnt \\ +med \\ -bck \end{bmatrix}$$


Then,

[+retracted]

i.e. if a nonconsonant precedes a nonretroflex, non-front, medial and nonback obstruent, then it acquires the feature retracted.

e.g. /i:/ in /o:qi:tta:n/ → [ʊ]

## CHAPTER FIVE

## 5. PHONOLOGICAL RULES

5.1 P-rules are Ordered

There are two ways in which rules can apply, namely, sequential or simultaneous ( for a discussion of the difference between these two, see, McCawley, 1968: 20-3). In sequential application of rules, an input like the following: /tin + [+nas][+obs] + aən/ (that is, a string of underlying elements or systematic phonemes) will be converted into an output [tɪnɔ:n] (that is, a string of phones) through several intermediate stages: suppose we call the input A, first some rule affects some element of A, thus yielding a new string A<sub>i</sub>, then some rule affects some element of A<sub>i</sub>, thus yielding A<sub>ii</sub>, etc., until some condition is reached which terminates the process (we will return to this point below). In the case of simultaneous application, there are no intermediate stages, and the rules simultaneously replace each item of the input string (for rules applying simultaneously, see, for example, Harris, 1951: 237). The rules of the phonological component of the present description can be regarded as sequential.



One possible condition which may terminate the process of sequential application of rules is that the process terminates whenever there are no more rules which would have any effect on the string. Such a system of rules is called random sequential (a term borrowed from McCawley, 1968: 21) or unordered (following Stanley, 1967). The R-rules of the phonology of this description can said to belong to such a system of rules (see, 4.3). Another condition is that the rules are assigned a fixed order, that the process of application is in that order, and that the process terminates when the end of the list of rules is reached. Such a system of rules is called ordered. The P-rules of the phonology are a set of ordered rules. Let us illustrate this point with an example. Consider an underlying string: /oo[ + i + i[ + [+obs] + aan/ 'he has run off'. We noted earlier (3.2) that the traffic rules, while marking the feature [+P] to those columns that should enter P-rules, indicate the number or numbers of the P-rules and, if necessary, impose a restriction in the order of their application. In the case of the above string, the traffic rule T 6 (see, pp. 276-7) will shunt it to the phonological rules P-4, P-7 and P-8. These rules are expected to apply in that order specified by T 6. Let us examine how these three P-rules along with the other rules convert the above underlying string into its phonetic

representation:

++ oo[ + i + i[ + [+obs] + aan ++ (underlying form)

++ o:[ + i + i[ + [+obs] + a:n ++ (PC 5)

++ o:[ + i + i[ + [+obs] + a:n ++ (T 6)

P-4 P-4 P-4 P-4

P-7 P-7 P-7 P-7

P-8 P-8 P-8 P-8

++ o:[ + i + i[ [+obs] a:n ++ (RA 1, the two morpheme  
boundaries are not <sup>a</sup>erased  
because they were referred  
to by T 6).

++ q:d + i + i[ a:n ++ (R1, R2, R3, R4, R5, R14,  
R21, R26, R28, R30, R31,  
R32, R33, R34, R36, R38,  
R39, R43).

++ q:d + i + i[ a:n ++ (P-4: the second i is  
deleted).

++ q:d + i: + i[ a:n ++ (P-7: i is lengthened)

++ q:d + i: + i[ a:n ++ (P-8: retroflex consonants  
are changed to alveolar  
obstruents).

q:di: i[ a:n

(The output from P-rules  
is recycled to the R-rules  
where R45 operates on it  
and the boundaries are  
erased).

[q:di: i[ a:n]

(The final output, i.e. the  
systematic phonetic  
representation).

A cursory glance on the path of the derivation of the above form shows that P-4, P-7 and P-8 have to apply in that order. Hence, the P-rules are expected to apply in the order they are determined. They are numbered accordingly in this description. If the /i/ deletion rule is numbered P-4, the /i/ lengthening rule is numbered P-7 and the deretroflexion rule is numbered P-8, then they apply in that order of numeration. For every utterance, the applicability of each rule is determined. If all or part of the string of phonological elements meets the structural description of the rule K, in accordance with the distinctiveness criterion (see, 1.4(e) ), the rule is applied. If not, the rule is not applied. Then the applicability of rule K+1 is determined, and so on down the entire list of rules. A return is not made to any rule K from any rule K+1, even if at some later stage a form's structural description should come to fit that given in rule K.

## 5.2 Function of the P-rules

The model of the present description does not require all the underlying matrices to enter the P-rules for their phonetic realizations. The R-rules of the phonological component are designed in such a way as to handle simple

matrices that do not pose any complications (see, 4.2). These matrices will emerge in their phonetic representations as soon as the process of the application of R-rules is terminated. But there are certain matrices which become subject to the traffic rules which mark them with the feature [+P] and the number or numbers of the phonological rules that should operate on them. If the matrices are not marked with the feature [+P], then the boundary features in those matrices are erased by the readjustment rules. Note that phonological word boundaries are not erased until the application of the R-rules is terminated (see, however, 1.9. pp. 74-5 where it has been pointed out that ++ is changed to + or deleted completely in certain environments). It has already been noted that R-rules apply within and across morpheme and word boundaries. If the matrices are marked with the feature [+P], then they need some feature changing, or some segments need to be deleted. If this situation occurs, then we prefer to say that there is complication in the phonology of those matrices. It is when such complication arises in the phonology, that the P-rules are needed. Let us examine this point with the following matrices:

- (a) /tin + iR + an/                    'I am eating'  
 (b) /tin + [+nas][+obs] + an/        'I ate'

In the case of (a), the phonetic realization of this form is reached by the application of the redundancy rules alone. There are no elements of the form (a) that need any feature changes or deletions. But in the case of (b), a sequence of three consonants, namely, [+nas][+nas][+obs] is present in it. A sequence of two nasal consonants followed by an obstruent never occurs in the phonetic representations of the Tamil underlying matrices. Therefore, the first nasal in that sequence has to be deleted. The redundancy rules cannot perform this function as they are conditioned to add features but not to change or delete any features. These mutations are done by the P-rules. Except for the deletion of the first nasal consonant, the form in (b) can be handled by the R-rules. Thus, the main function of the P-rules is to handle matrices which need changes in the feature specifications that are assigned in the underlying level; to handle matrices complicating the phonology which otherwise can be handled by the R-rules alone.

The reader can now note how the rules of the present model of description depart from that of the C and H model. In their formulation, the redundancy rules are to operate within morpheme boundaries, and the phonological rules to operate without this restriction. This methodological decision (C and H: 171) leads them to make some inconsistent

statements. While discussing a rule which restricts the initial consonant cluster in English, they say, "We cannot in all cases determine from the form of a rule whether it is a lexical redundancy rule or <sup>a</sup> rule of the phonology. If for example, a rule such as (7) were to apply across formative boundary, it could not be a lexical redundancy rule. Thus consider the rule, dating back to Old English, that vowels are nontense in position before certain consonant clusters. Before clusters such as [kt] and [pt], we always find lax vowels, not only when the cluster occurs within a formative as in evict, apt, crypt, but also when it occurs across formative boundary as in descrip + tion, satisfac + tion .... Thus this laxing rule as opposed to rule (7), is a rule of the phonology rather than a lexical redundancy rule". If the restriction on initial consonant clusters of English belongs to the lexical redundancy rules which according to them (f.n. 9) "express regularities of lexical classification", the restriction on the vowels that precede the consonant clusters like [kt] and [pt] also should belong to those items which express regularities of lexical classification. But they decide that it should belong to the rule of the phonology because it happens to occur across the morpheme boundary too. Similarly, the rule governing voicing in obstruent sequences in Russian is also placed in the phonological rules for the following



reason: "to avoid duplication of such rules in the grammar it is necessary to regard them not as redundancy rules but as phonological rules that also happen to apply internally to a lexical stem". But as Brown (1969: 15) pointed out, they accept the suggestion made by Stanley (1967) that all lexical items must be fully specified on entry to the phonological rules. This means that the rule governing obstruent sequences in Russian does have to be stated twice; once in the redundancy rules to allow the lexical item to enter the phonological rules fully specified, and once in the phonological rules to allow the same regularity to operate over morpheme boundaries. This inconsistency occurs in their formulation because of their rigid restriction on the redundancy rules. At one point they seemed to have realized this fact and the following statement reveals it: "Nevertheless, there are certain difficulties in formulating redundancy rules within the framework outlined for ordinary phonological rules, difficulties which suggest that the conception just sketched is in need of revision"(382).

In the present model of description, the redundancy rules are allowed to apply across morpheme boundaries and word boundaries and they are regarded as realization rules. This methodological decision saves a number of phonological rules and further the redundancy rules themselves specify



systematic phonetic representations for a majority of underlying matrices in Tamil. Phonological rules present in the grammar apply only when the matrices are marked with the features [+G], [+P]. The functions of the redundancy rules and the phonological rules are distinguished by the operations they perform and not merely by a superficial formal distinction, whether they apply within morpheme boundaries or across them. As Brown (1969: 16) pointed out, the redundancy rules functioning as realization rules complete the phonetic specification of the output of the syntactic surface structure. The formal constraint on their function is that they can only add features. The phonological rules, on the other hand, are exclusively mutation rules. They operate on the output from redundancy rules which is marked for entry to P-rules. They exist only to deal with complications in the phonology. When they have adjusted the specification of an item, it is recycled through the redundancy rules which complete the phonetic specification. The formal distinction then between redundancy rules and phonological rules is that whereas redundancy rules add features but perform no other operations, the phonological rules only perform operations other than simple additioning transformations.

### 5.3 Form of the P-rules

The phonological rules are expressed in the form of 'rewrite' rules. Since the phonological rules are essentially mutation rules, the symbol '→' in a rule means "rewrite as". Rewrite rules are employed when only one segment is altered by a rule. Consider for example the following rule (see, P-1) where the first consonant in a sequence of three consonants is deleted:

$$[+cns] \quad \rightarrow \quad \emptyset \quad / \quad \text{---} [+cns][+cns]$$

i.e. in a sequence of three consonants, the first one is deleted.

e.g. /nil + [+nas][+obs] + an/ → /nil<sub>n</sub>qan/ →

[n<sub>n</sub>iqan] 'I stood'

/paar + [+obs][+obs] + an/ → /p<sub>a</sub>:rttan/ →

[p<sub>a</sub>:tten] 'I saw'

The form of the above rule is adequate to express the deletion of one segment in the structural description of the rule.

Under certain circumstances a shift of format to that generally employed in stating transformational rule is used. Consider for example a rule (see, P-8) which can be regarded as a deretroflexion rule. That is, it converts two retroflex/<sup>obstruent</sup>consonants into nonretroflex alveolar obstruents. This change in a rewrite form of the rule has to

be stated as:

$$\underline{t} \underline{t} \rightarrow \underline{t} \underline{t} / + \begin{bmatrix} -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ -\text{low} \\ +\text{lng} \end{bmatrix} + \text{---}$$

Since more than one segment is changed by this rule, it is desirable to state this in the following form:

$$\begin{array}{lcl} \text{SD:} & + & \begin{bmatrix} -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ -\text{low} \\ +\text{lng} \end{bmatrix} + \begin{bmatrix} +\text{obs} \\ +\text{ret} \\ -\text{fnt} \\ +\text{med} \\ -\text{bck} \end{bmatrix} \begin{bmatrix} +\text{obs} \\ +\text{ret} \\ -\text{fnt} \\ +\text{med} \\ -\text{bck} \end{bmatrix} \\ & 1 & 2 \quad 3 \quad 4 \quad 5 \end{array}$$

$$\begin{array}{lcl} \text{SC:} & 4 & \rightarrow [-\text{ret}] \\ & 5 & \rightarrow [-\text{ret}] \end{array}$$

i.e. two retroflex obstruents which are preceded by a morpheme boundary, a long nonconsonant /i:/ and a morpheme boundary, are changed to nonfront, medial, nonback and nonretroflex obstruents.

$$\begin{array}{lcl} \text{e.g.} & /a\alpha R + i + i\underline{t} + [+obs] + utu/ & \rightarrow \\ & /a:R + i + \underline{t} \underline{t} \underline{u} \underline{d} \underline{u} / & \rightarrow \\ & /a:R + i: + \underline{t} \underline{t} \underline{u} \underline{d} \underline{u} / & \rightarrow \\ & [a:R\underline{1}:\underline{t} \underline{t} \underline{u} \underline{d} \underline{u}] & \text{'it has cooled down'} \end{array}$$

The rewrite rule always writes a single symbol on the left hand side of the arrow. But in the above case, if it is expressed in the rewrite form, then it will rewrite two

symbols in the linear order. Therefore, the above format of the rule is employed.

Apart from the phonological information carried by individual segments, the phonological rules may refer to information carried by a morpheme as a whole (see, 4.4 for a similar statement that has been made for R-rules). This information is mainly syntactic. Consider the following rule (P-10):

$$\begin{bmatrix} -\text{cns} \\ -\text{lng} \end{bmatrix} \rightarrow \quad [+ \text{lng}] \quad / \quad ++ \quad [+ \text{cns}] \quad \_ \quad \begin{bmatrix} +\text{obs} \\ +\text{ret} \end{bmatrix} \quad + \quad \begin{bmatrix} +\text{Vn4} \\ -\text{cns} \\ -\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix}$$

i.e. if a sequence of word initial consonant, a nonlong nonconsonant and a retroflex obstruent is followed by a nonconsonant that is governed by the syntactic feature [+Vn4] (i.e. verbal noun suffix 4 = /u/ ), then the nonlong nonconsonant in the preceding sequence is lengthened.

e.g.    /cu<sub>l</sub> + u/            →            [sɘ:qɯ]    'shot'  
           /pa<sub>l</sub> + u/            →            [pɘ:qɯ]    'condition'

The syntactic information (i.e. [+Vn4] ) is needed in the rule in order to prevent the vowel being lengthened when a non-verbal noun suffix /u/ occurs after that sequence. For example, one of the above verbal stems /cu<sub>l</sub>/ - 'shoot' becomes a positive imperative form when the imperative

suffix /u/ is added. Thus the string /cu + u/ becomes [suq̥u]. But if in P-10, the suffix /u/ is not accompanied by the syntactic feature [+Vn4], then the rule may apply to a sequence which has the imperative suffix too. This will yield an incorrect result. Hence, the syntactic information is inserted in rule P-10.

#### 5.4 P-rules of the Phonology

P 1:

[+cns] → null / — [+cns][+cns]

i.e. the first member of a sequence of three consonants is deleted.

e.g. /nil + kkiR + an/ → [nikk̥iRən]  
 'I am standing'

/kee + pp + an/ → [kɜ:ppən]  
 'I will ask'

/paar + pp + an/ → [pa:ppən]  
 'I will see'

/vil + a/ → /vilkkə/ → [vikkə]  
 'to sell'

/taad + a/ → /tɛ:kkə/ → [tɛ:kkə]  
 'to bury'

/poor + a/ → /po:rkə/ → [po:rkə]  
 'to cover'

/oo[ + aa + mal ++ poo/      →    /p:qa:mal ++ ppo:/  
    →    [p:qa:mappo:]    'go without running'  
 /var + [+nas][+obs] + aal ++ ku[u/      →  
    /varnda:l ++ k[u/      →    [vanda:kk[u/]  
    'give if comes'

This rule has been referred to by three traffic rules, namely, T 1, T 10 and T 11. T 1 is a general rule which shunts any matrix which has a sequence of three consonants irrespective of boundary markers. Consider the following underlying forms:

- (a)            /nil + kkiR + an/            'I am standing'  
 (b)            /tiruNt + [+obs] + u/        'cause to improve'  
    (imp.)

In the case of (a) the sequence of three consonants is interrupted by a morpheme boundary which separates the lateral consonant from the other two obstruents. In the case of (b) the morpheme boundary separates nasal plus obstruent from the third member which is an obstruent. The traffic rules have free access to all the boundary markers and they can refer to any boundary feature. Once a boundary feature is referred to by a traffic rule, then it is not erased until all phonetic specifications are completed. But in the case of (a) and (b) and in the case of the first three examples given immediately after P-1,

the traffic rule T 1 need not refer to any boundary feature. Further, in these examples, the sequence of three consonants occurs in the underlying level itself. But in the case of T 10, it refers to a sequence of a consonant which is a final element of a Class II verbal stem and a nonconsonant. This sequence becomes as one that containing three consonants only after the application of R-rules R 9 and R 13. Thus, it has to enter the P-rule for the deletion of the first consonant. Similarly, T 11 refers to a sequence of a nonretroflex lateral and an obstruent. This too by the application of R 13 becomes a sequence containing three consonants. Thus T 10 and T 11 refer to such sequences, which do not have the structural description of P-1, in the underlying level. But these sequences invariably have to enter the rule P-1 and the traffic rules T 10 and T 11 are able to predict this.

There are some sequences to which the rule P-1 is exempted from applying. Such sequences as /ykk/ and /ypp/ which contain three consonants are not subject to this rule. This exception has already been stated in T 1. Thus, such sequences are not marked with the feature [+P-1] and they will not enter the phonological rules.

P-1 along with T 1, T 10 and T 11 make a valid generalization about the distribution of the consonantal sounds in in the phonetic representation of the underlying



phonological forms. These rules suggest that there no three consonantal sounds can cooccur. At the phonological level three consonants can cooccur (see, PC 3); but at the phonetic level this is not possible.

P 2:

$$\begin{bmatrix} +cns \\ +app \\ -fnt \end{bmatrix} \rightarrow \text{null} / + \begin{bmatrix} -cns \\ +lng \end{bmatrix} \text{ --- } ++$$

i.e. a nonfront approximant consonant which occurs at the word final position and preceded by a long consonant and a morpheme boundary is deleted.

e.g. /eɭu + kkiR + aay/ → [ʒqukkɪRa:]  
 'you are taking'  
 /cey + iR + aay/ → [seyyɪRa:]  
 'you are doing'  
 /kuɭi + kkiR + aay/ → [kuɖikkɪRa:]  
 'you are drinking'  
 /kiɭi + [+obs][+obs] + aay/ → [kɪɭicca:]  
 'you tore'

The morpheme boundary referred to in the rule is important because it restricts the rule applying to underlying forms such as ++ paay ++ 'jump' (imp.), ++ caay ++ 'lean against' (imp.) which are positive imperative forms. The final nonfront approximant consonant in these cases is not deleted even though it occurs at the word final position.

P 3:

$$\begin{bmatrix} -\text{cns} \\ -\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix} \rightarrow \text{null} / \left\{ \begin{array}{cc} \text{---} & [-\text{cns}] \\ \begin{bmatrix} -\text{cns} \\ +\text{lng} \end{bmatrix} & \text{---} \end{array} \right\}$$

i.e. nonfront, nonmedial, nonlow nonconsonant (i.e. /u/) is deleted when it occurs either before any nonconsonant or after a long nonconsonant.

e.g. /vilu + an/ → [vɪlən] 'fall' (imp.)  
 /elu + an/ → [ɛlən] 'take' (imp.)  
 /vilu + aa + utu/ → [vɪlɑ:du] 'it won't fall'  
 /var + [+nas][+obs] + u ++ iru/ → [vɑndiru] 'come and sit'

P 4:

$$\begin{bmatrix} -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ \text{Xlow} \\ -\text{lng} \end{bmatrix} \rightarrow \text{null} / \left\{ \begin{array}{c} \begin{bmatrix} -\text{lat} \\ -\text{ret} \end{bmatrix} \\ [-\text{cns}] \begin{bmatrix} +\text{obs} \\ +\text{ret} \end{bmatrix} \\ + \begin{bmatrix} -\text{cns} \\ \text{Xlng} \end{bmatrix} \end{array} \right\} + \text{---}$$

i.e. a front, nonmedial, low or nonlow, nonlong, nonconsonant is deleted when it occurs after

any one of the following: a nonlateral nonretroflex consonant (/r/) which is followed by a morpheme boundary, a retroflex obstruent (/ɭ/) which is preceded by a nonconsonant and followed by a morpheme boundary, a long or short nonconsonant which is preceded and followed by morpheme boundaries.

e.g. /ceer + iR + an/ → /se:r + R + an/ →  
                     [se:rrən]        'I am joining'  
 /naɭ + iR + an/ → /nʌɖ + R + ən/  
                     [nʌRRən]        'I am planting'  
 /ooɭ + iR + an/ → /ɸ:ɖ + R + ən/ →  
                     [ɸ:RRən]        'I am running'  
 /paɖɭ + aa + iɭɭaɖɭ/ → /pʌ:ɖ + a: + ɭɭa:l/ →  
                     [pʌ:ɖʌ:ɭɭa:l]    'if you don't sing'  
 /aaR + i + iɭ + [+obs] + utu/ → /ʌ:R + i + ɭɭ + udu/  
                     → [ʌ:Rɪ:ɭɭɪdu]    'it has cooled down'  
 /var + aa + inam + oo + eNɭu/ →  
                     /var + a: + yinam + o: + ɳɖu/  
                     [vara:yinamɸ:ɳɖu]        "won't they come"

P 5:

$\begin{bmatrix} -\text{lat} \\ +\text{ret} \end{bmatrix} \rightarrow [-\text{ret}] / \begin{bmatrix} -\text{lat} \\ -\text{ret} \end{bmatrix} \text{ —}$

i.e. nonlateral retroflex consonant (/R/) is changed to a nonretroflex one when it is preceded by a nonlateral nonretroflex consonant.

e.g. /ceer + iR + an/	→ /se:r + R + ən/
→ [se:rrən] <sup>1</sup>	'I am reaching'
/ayar + iR + an/	→ /ayar + R + ən/
→ [ayarən]	'I am sleeping'
/puur + iR + an/	→ /pu:r + R + ən/
→ [pu:rrən]	'I am entering'
/vaɭar + iR + an/	→ /vΔɭar + R + ən/
→ [vΔɭarən]	'I am growing'
/toɭar + iR + an/	→ /tɔɭar + R + ən/
→ [tɔɭarən]	'I am following'

P 6:

<div style="border: 1px solid black; padding: 5px; display: inline-block;"> +obs -nas -lat +ret </div>	→	[-obs] / [-cns] —	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> -obs -nas -lat +ret </div>
--	---	-------------------	--

i.e. a retroflex obstruent is changed to a nonobstruent, nonnasal, nonlateral, retroflex consonant when it is preceded by a nonconsonant and followed by a nonobstruent, nonnasal, nonlateral, retroflex consonant

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1. See, Chapter 6, p. 391 for a phonetic description of [rr].

e.g. /toʃ + iR + ən/	→	/tʊʃ + R + ən/	→
[tʊʃRRən] <sup>2</sup>		'I am touching'	
/viʃ + iR + ən/	→	/vɪʃ + R + ən/	→
[vɪʃRRən]		n'I am leaving'	
/pɑːʃ + iR + ən/	→	/pɑːʃ + R + ən/	→
[pɑːʃRRən]		'I am singing'	
/tiːʃ + iR + ən/	→	/teːʃ + R + ən/	→
[tɜːʃRRən]		'I am searching'	
/nɑːʃ + iR + ən/	→	/nɑːʃ + R + ən/	→
[nɑːʃRRən]		'I am planting'	

P 7:

$$\begin{bmatrix} -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ -\text{low} \\ -\text{lng} \end{bmatrix}$$

→ [+lng] / + \_\_ + [+obs][+obs]

i.e. a front, nonmedial, nonlow, nonlong nonconsonant is changed to a long one when it is preceded by a morpheme boundary and followed by a morpheme boundary and a sequence of two obstruents

e.g. /ɑːʃ + i + iʃ + [+obs] + ɑːn/ →  
 /ɑːʃ + iː + iʃɑːn/ → [ɑːʃiːiʃɑːn]  
 'he has danced'

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2. See, Chapter 6, p. 393 for a phonetic description of [RR].

/kuu[ + i + i[ + [+obs] + utu/ →  
 /kʌ:q̣ + i + [ṭwdu/ → [kʌ:q̣l:ṭwdu]  
 'it has increased'  
 /paa[ + i + i[ + [+obs] + aa[ →  
 /pʌ:q̣ + i + [ṭʌ:l/ → [pʌ:q̣l:ṭʌ:l]  
 'she has sung'  
 /oo[ + i + i[ + [+obs] + aan/ →  
 /o:q̣ + i + [lʌ:n/ → [o:q̣l:ṭʌ:n]  
 'he has run off'  
 /moot + i + i[ + [+obs] + aan/ →  
 /mo:d + i + [lʌ:n/ → [mo:dʌ:ṭʌ:n]  
 'he has collided'  
 /eeR + i + i[ + [+obs] + aan/ →  
 /ʒR + i + [lʌ:n/ → [ʒ:Rl:ṭʌ:n]  
 'he has climbed up'  
 /kaa[ + i + i[ + [+obs] + an/ →  
 /kʌ:ṭ + i + [ṭan/ → [kʌ:ṭl:ṭʌn]  
 'I have showed'

P 8:

SD:      +     $\begin{bmatrix} -cns \\ +fnt \\ -med \\ -low \\ +lng \end{bmatrix}$     +     $\begin{bmatrix} +obs \\ +ret \\ -fnt \\ +med \\ -bck \end{bmatrix}$      $\begin{bmatrix} +obs \\ +ret \\ -fnt \\ +med \\ -bck \end{bmatrix}$   
           1    2    3    4    5  
 SC:      4    →    [-ret]  
           5    →    [-ret]

i.e. a sequence of two retroflex obstruents is changed to a sequence of two nonfront, medial, nonback and nonretroflex obstruents (i.e. [t̪t̪]), when it is preceded by a morpheme boundary, a long nonconsonant i: and a morpheme boundary.

- e.g. /teeɭ + i + iɭ + [+obs] + aan/ →  
 /t̪ɜ:ɖ + i: + ɭ̪a:n/ → [t̪ɜ:ɖ̪i:t̪t̪a:n]  
 'he has searched'
- /muuɭ + i + iɭ + [+obs] + aan/ →  
 /m̥u:ɖ + i: + ɭ̪a:n/ → [m̥u:ɖ̪i:t̪t̪a:n]  
 'he has closed'
- /maɖR + i + iɭ + [+obs] + aan/ →  
 /m̥ɖ:R + i: + ɭ̪a:n/ → [m̥ɖ:R̪i:t̪t̪a:n]  
 'he has changed'
- /taɭ + i + iɭ + [+obs] + aan/ →  
 /t̪ɖ̪ + i: + ɭ̪a:n/ → [t̪ɖ̪̪i:t̪t̪a:n]  
 'he has pushed'
- /mayaNk + i + iɭ + [+obs] + aan/ →  
 /mayɔŋg + i: + ɭ̪a:n/ → [m̥ɔyɔŋgi:t̪t̪a:n]  
 'he has fainted'
- /tuukk + i + iɭ + [+obs] + aan/ →  
 /tu:kk + i: + ɭ̪a:n/ → [tu:kk̪i:t̪t̪a:n]  
 'he has carried'



P 9:

$$\begin{bmatrix} -\text{cns} \\ -\text{fnt} \\ +\text{med} \\ +\text{low} \\ +\text{lng} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{fnt} \\ -\text{med} \\ -\text{low} \\ -\text{lng} \end{bmatrix} / + \text{---} \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} + \begin{bmatrix} -\text{cns} \\ +\text{lng} \end{bmatrix}$$

i.e. nonfront, medial, low, long nonconsonant is **changed** to a front, nonmedial, nonlow and nonlong one when it is preceded by a morphemem boundary and followed by a nonfront approximant consonant which is followed by a morpheme boundary and a long nonconsonant.

e.g. /kaʔi + iR + aay + ee/ → [kaʔiʔiRiye:]  
 'are you binding?'

/tay + kkiR + aay + ee/ → [taykkiʔiRiye:]  
 'are you knitting?'

/naʔi + pp + aay + ee/ → [naʔippiye:]  
 'will you act?'

/vaaNk + iR + aay + ee/ → [va:ngʔiRiye:]  
 'are you buying?'

/kiNʔ + in + aay + ee/ → [kiʔdiniye:]  
 'did you dig?'

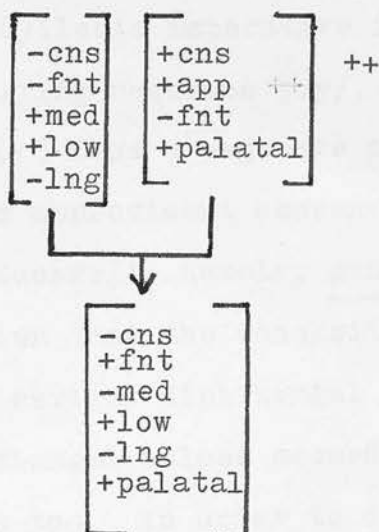
P 10:

$$\begin{bmatrix} -\text{cns} \\ -\text{lng} \end{bmatrix} \rightarrow [+lng] / ++ [+cns] \text{---} \begin{bmatrix} +\text{obs} \\ +\text{ret} \end{bmatrix} + \begin{bmatrix} +\text{Vn4} \\ -\text{cns} \\ -\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix}$$

i.e. a nonlong nonconsonant is changed to a long one when it is preceded by a word initial consonant and followed by a retroflex obstruent, a morpheme boundary and verbal noun suffix which is a nonfront, nonmedial, nonlow nonconsonant.

e.g. /cuɽ + u/ → [sʌ:ɽu] 'shot'  
 /paɽ + u/ → [pʌ:ɽu] 'condition'

P 11:



i.e. a word final sequence of a nonfront, medial, low, nonlong nonconsonant and a palatal, nonfront, approximant consonant, contracts into a front, nonmedial, low, nonlong, palatal nonconsonant.

e.g. /utay/ → [udɛ] 'kick'  
 /ay/

/aray/	→	[arɛ]	'grind'
/uṭay/	→	[uɖɛ]	'break'
/vaḷay/	→	[vʌɮɛ]	'bend'
/kuRay/	→	[kʌRɛ]	'shorten'
/kalay/	→	[kalɛ]	'chase'
/pinay/	→	[pinẽ]	'mash'
/nanay/	→	[nanẽ]	'get wet'

A surface phonetic vowel [ɛ] is encountered in the final position of the dissyllabic imperative finite verbal forms ending in the underlying sequence /ay/. The realization of the phonetic vowel [ɛ] from a sequence of -/ay/, that is, a nonconsonant plus an approximant consonant, resembles the well known rule in Sanskrit, namely, gunasandhi. Allen (1962: 31-2) has shown that the Sanskrit /e/ and /o/ must have descended from earlier diphthongal values (i.e. ai and au). But the diphthongal values seemed to have survived in the later periods too. In order to distinguish the monophthongal values from the diphthongal values, the phoneticians have used various symbols. Allen says that there is a grammatical advantage in analysing the diphthongs, the predecessors of Sanskrit /e/ and /o/, as a sequence of short /a/ and semi-vowel (ɤy/ and /v/ respectively). A further advantage of this analysis, according to him, is that it renders transparent the internal sandhi alternation of /e/

and /o/ before a consonant with /ay/ and /av/ before a vowel. It has then only to be stated that in the later language /ay/ and /av/ are monophthongized before a consonant and preserved before a vowel. A similar view has been taken in the present description regarding the treatment of alternation taking place between the sequence /ay/ and the phonetic vowel [ɛ].

The diphthong of classical Tamil and the modern literary dialect, which is written as ay, (ai) has been rendered as a sequence of a short vowel /a/ and a consonant /y/ in the underlying level of the present description. This sequence alternates with [ɛ] when it is word final, but is preserved otherwise:

e.g. uday <sup>+</sup> Ṛen	(/ay/ preserved before a vowel)
kuRaykk <sup>+</sup> Ṛen	(/ay/ preserved before a consonant)
ude ++	(/ay/ becomes [ɛ] in word final position)

The analysis of Tamil diphthong as a sequence of /ay/ has been initiated by the earliest Tamil grammarian, Tolkāṇṇiyar himself. One of his rules specifies that the diphthong /ai/ is a combination of the vowels /a/ and /i/.<sup>3</sup> But in another rule,<sup>4</sup> he specifies that the diphthong /ai/ can appear as

---

3. Tolkāṇṇiyam, Eluttatikaram, sutra 54.

4. Ibid., sutra 56.

a sequence of the vowel /a/ and a consonant /y/. The diphthongal value of /ay/ was changing to /a/ or /e/ in the eleventh and twelfth century literary usage. This change was noted by Caldwell (1856) whose following observation is worthy of notice: "The primitive Dravidian a changes into e, and this again to ei. Thus, the head is tala in Telugu and Malayalam ttale in Canarese, and talei in Tamil". The word-final diphthong /ay/ changing to [e] is a significant phonological change in the Ceylon spoken Tamil. But this [e] is not very much fronted or lowered. It can be assigned to a nonfront central-mid position (symbolized [ɛ]). This can be considered as a monophthongal value of the diphthong /ay/.

The format of the rule P-11 needs an explanation here. The sequence /ay/ changes into a new segment which shares some features of the nonconsonant and the palatal feature of the consonant. This sort of change cannot be expressed by the existing rule formats in generative phonology. Therefore, we have adopted a new form of rule to express this change.

P 12:

$$\begin{bmatrix} -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ -\text{low} \\ +\text{lng} \end{bmatrix} \rightarrow [-\text{lng}] / \text{---} \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} \begin{bmatrix} -\text{cns} \\ +\text{lng} \end{bmatrix}$$

i.e. front, nonmedial, nonlow, long nonconsonant is changed to a nonlong one when it is followed by a sequence of nonfront approximant consonant and a long nonconsonant.

e.g. /paṭi + kkiR + nii + ee/ → /pʌdikkɪRaniːye:/ →  
 [pʌdikkɪRaniye:] 'do you study '  
 /tooy + kkiR + nii + ee/ → /to:ykkɪRaniːye:/ →  
 [to:ykkɪRaniye:] 'do you wash '  
 /vaanNk + in + nii + ee/ → /va:ŋginaniːye:/ →  
 [va:ŋginaniye:] 'did you buy '  
 /poo + iR + nii + ee/ → /pɔ̃:Raniːye:/ →  
 [pɔ̃:Raniye:] 'do you go'

## CHAPTER SIX

## 6. PHONETIC REALIZATIONS

6.1 Preliminary Remarks

In this chapter, the output of the phonological component which is the output of the redundancy rules, is informally related to articulatory terms of traditional phonetic description.

While discussing the phonetic quality of each phonetic segment, reference will be made to palatographic and kymographic evidence. The tracings of the palatograms are presented in pp. 395 -401 and that of the kymograms in pp. 402- 14. Note that these tracings are of reduced size. Diagram 6.1 which is presented on the next page (365), is traced from a representative palatogram and zoned as in Firth (1948). Reference is made to the wipe-off in the numbered zones. Table 6.1 which is also presented on the next page (365), relates the horizontal lines drawn in Diagram 6.1 to their respective zones. The first column in Table 6.1 refers to the lines, the second provides the zones and the final column gives the grouped zones:



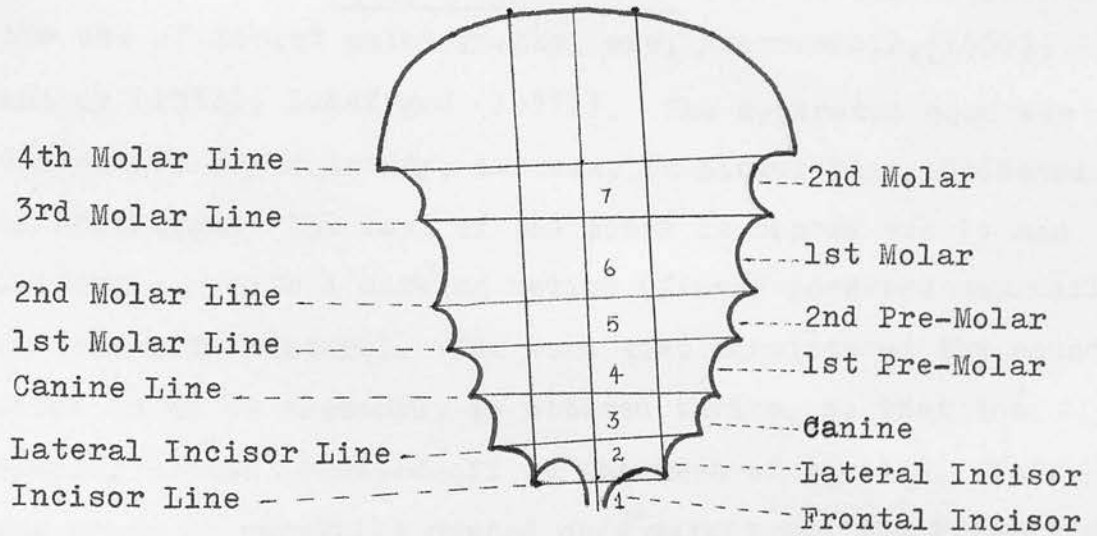


Diagram 6.1. Zoning of the Palate

The horizontal lines	The zones	The grouped zone
1. Incisor line	Dental	Dental
2. Lateral Incisor line	Denti-alveolar	
3. Canine line	Alveolar	Alveolar
4. First molar line	Post-alveolar	
5. Second molar line	Pre-palatal	Palatal
6. Third molar line	Mid-palatal	
7. Fourth molar line	Post-palatal	

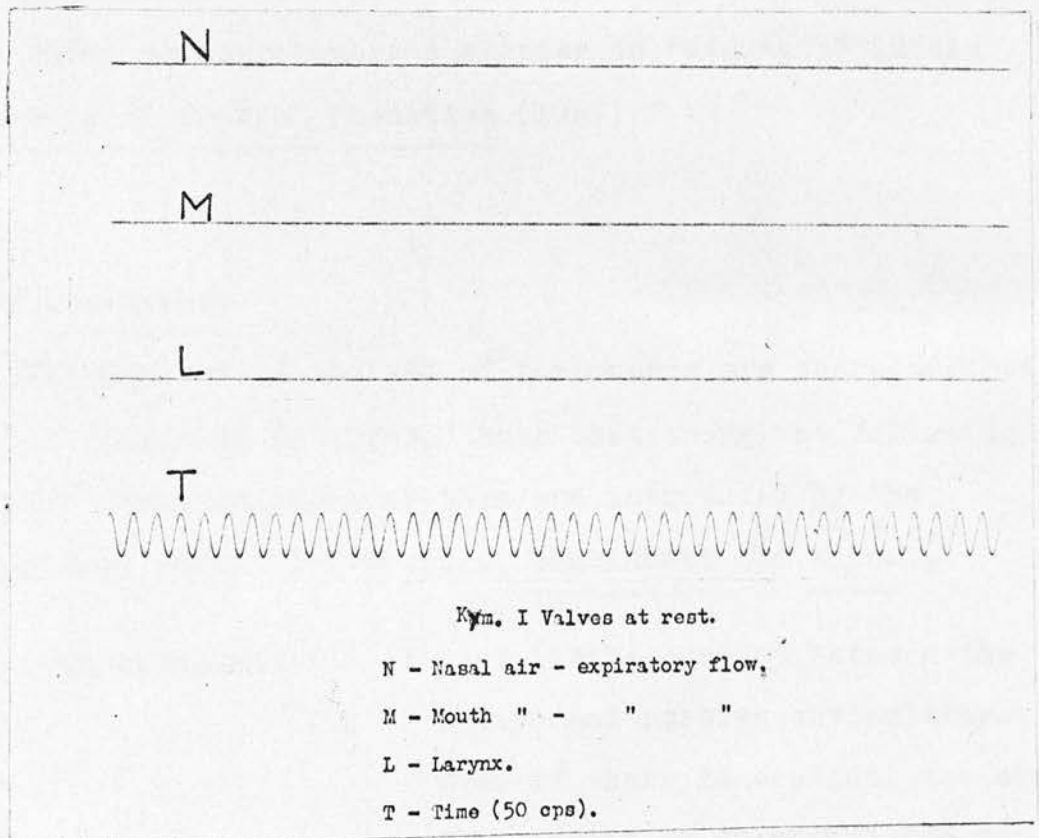
Table 6.1

The method used to obtain all the palatograms presented in this thesis, was direct palatography (For details regarding the use of direct palatography, see, Abercrombie, (1957); Antony (1954); Ladefoged (1957)). The apparatus used was devised by Mr. J. Antony, Lecturer in Linguistics, University of Edinburgh. The roof of the mouth is coated evenly and uniformly with a marking medium (finely powdered charcoal and chocolate mixture). The word that consists of the sound which is to be examined, is uttered thrice, so that the marking medium is wiped-off in the area of contact. Then, the mouth is carefully opened on<sup>to</sup> a mirror and the reflection on the mirror is photographed.

The instrument used in making all kymograms is the Electro-Aerometer, type AM508/4 made by messrs B. Frokjoer - Jensen, Denmark, which registers the inspiratory and expiratory airflow through the nose and the mouth. The Aerometer is connected to a Mingograph which writes on a roll of paper, a larynx microphone connected through the amplifier records the vibrations of the vocal cords. When the vocal cords do not vibrate, the Mingograph registers this by drawing a straight line on the roll of paper. The vibration of the vocal cords is registered by wavy<sup>a</sup>/line.

In the kymograms reproduced in this thesis, there are four lines. The top two lines are a record of the expiratory

airflow through the nose and the mouth respectively. The third line shows the vibration of the vocal cords or an absence of such vibration. The fourth line indicates the time, recorded in 50 cycles per second. A kymographic tracing obtained when the valves were at rest is reproduced below and the four lines are explained:



The primary features of consonants and nonconsonants are described in terms of traditional phonetic description in 6.2 and 6.3 respectively. Subsequently, each phonetic segment with its bundle of features (both primary and redundant) will be described individually in its respective section. That is, consonantal segments will be described in 6.2 and the nonconsonantal segments in 6.3. Most of the descriptions are based on Abercrombie's chapter on "segments" in his Elements of General Phonetics (1967)

## 6.2 Consonants

The members of the set of consonants are characterised by the following features. Note that among the following primary features, some of them are introduced by the redundancy rules (for example, continuant and voice):

- |                |   |
|----------------|---|
| [+approximant] | : very little contact between the active and passive articulators; even if there is contact, the oral flow of air is unimpeded and no possibility of friction.        |
| [-approximant] | : there is more contact between the active and passive articulators; the oral flow of air is either partially obstructed or completely blocked; and either there is a |

possibility of friction or no possibility of friction.

- [+nasal] : the air-stream prevented from passing through the mouth by a stricture of complete closure, is entirely diverted through the nose; no velic closure; there is resonance in the nasal cavities.
- [-nasal] : there is no resonance in the nasal cavities.
- [+lateral] : a stricture of complete closure in the centre of the vocal tract, so that there is lateral passage of the air-stream, round the sides of the obstruction.
- [-lateral] : there is no lateral passage of the air-stream.
- [+retroflex] : the active articulator is the tongue and the passive articulator is the hard palate; the tongue is curled back and raised towards the hard palate.
- [-retroflex] : the tongue is not curled back.
- [+front] : the contact between the active

- : articulator, the lower lip, with the passive articulators, upper lip and upper teeth; the contact between the active articulator, tongue, and the passive articulator, upper teeth.
- [-front] : do not have such contacts as for the [+fnt] segments.
- [+medial] : the contact between the active articulator, tongue, and the passive articulators, upper-teeth, teeth-ridge, and hard palate.
- [-medial] : no such contacts as described for [+med] segments.
- [+back] : contact between the back of the tongue and the velum or the soft palate.
- [-back] : no such contact as described for [+bck] segments.
- [+voice] : the vocal cords vibrate, producing voice.
- [-voice] : the vocal cords are apart, not in vibration.
- [+continuant] : the oral flow of air is partially obstructed by a stricture.

[-continuant  
+obstruent]

: in the oral cavity, there is possibility of friction.

[+continuant  
-obstruent]

: the oral flow of air is blocked by complete closure in the mouth.

[+continuant  
+obstruent]

: the oral flow of air is relatively unimpeded, no possibility of friction.

: the oral flow of air is partially impeded, strong friction, possibility of briefly held stop followed by affricated release.

### 6.2.1 The Problem of Double Consonants

Before we present the descriptions of the phonetic qualities of each consonantal segment, the problem regarding the double consonants in Tamil has to be taken up again (see, 1.12.2 where this subject has already been discussed). In this section, an attempt is made with kymographic evidence to prove that the Tamil double consonants are really double. That is, the duration of a double consonant is as twice as that of a single consonant. A long consonant need not always have this much of duration. It can be either as twice as that of a single consonant; or slightly longer than that of



a single consonant. The following double consonants occur in the speech of the present writer:

[pp], [tt], [cc], [kk], [ʈʈ],  
 [mm], [nn], [ŋŋ],  
 [ll], [ʃʃ],  
 [rr], [RR],  
 [vv], [yy].

Among these, we do not have contrastive pairs to compare a single palato-alveolar ([c]) or retroflex ([ʈ]) voiceless obstruent with the double voiceless obstruents. But the evidence presented below by analysing the other single and double obstruents suggest that the obstruent segments in [uccw] and [kʌʈʈw] are doubled. The following pairs are taken up for examination:

[p] <sup>1</sup>	and	[pp]
[t]	and	[tt]
[k]	and	[kk]

- 
1. The kymographic tracing of the word [upəsari] 'entertain' (see, Kym. 2) shows a single bilabial voiceless obstruent. This is the only example found among the verbal forms studied, which has a single voiceless noncontinuant obstruent in a verbal stem. The kymographic tracing of this word is compared with that of

(continued)

As we noted in the beginning of this chapter (see, Kym. 1), the third line in each kymographic tracing shows the presence or absence of voicing. That is, during the articulation of a particular segment, whether there is vibration of the vocal cords or not. The presence of voicing is indicated by a spiky line; whereas the absence of it is registered by a straight line. This straight line approximately indicates the duration of the occlusion. Thus, by comparing the straight line of a single voiceless obstruent with that of double voiceless obstruents, we ~~may be~~ <sup>are</sup> able to calculate the duration of the occlusion for the former and the latter. The calculation of the duration is made according to the number of cycles that are found in the fourth line of each kymographic tracing. One such cycle is equal to 1/50th of a second, which is equal to 20 milliseconds (henceforth, MScs).

Kym.4 and Kym.5 are tracings of the phrases [se:ndu paqi] 'get together and study' and [vanda: ppa:r] 'see if comes' respectively. The former illustrates the single voiceless bilabial plosive;<sup>2</sup> whereas the latter consists of double

---

[tappu] 'escape' (see, Kym. 3). The duration of the occlusion for the former is approximately 40 MScs.; whereas for the latter is approximately 140 MScs..

2. There is a free variation between [p] and [β]. But the former seems to be the frequent variant.

bilabial plosives. The durations of the closure and the occlusion for the former and the latter are approximately 40 MScs and 110 MScs respectively. Kym. 6 and Kym. 7 are tracings of the phrases [vandu tin] 'come and eat' and [kuquttu ttin] 'give and eat' respectively. The former has a single voiceless dental plosive;<sup>3</sup> while the latter has double voiceless dental plosives. The durations of the mouth closure and the occlusion for the former and the latter are approximately 40 MScs and 80 MScs respectively. Kym. 8 and Kym. 9 are tracings of the phrases [irundu kuqi] 'sit down and drink' and [3quttu kuqu] 'take and give' respectively. The former has a single voiceless velar plosive;<sup>4</sup> while the latter has double velar plosives. The durations for the mouth closure and the occlusion are approximately 40 MScs and 80 MScs respectively.

The evidence presented above suggests that the time taken to utter any one of the following: [pp], [tt], [kk], is as much twice as that for any one of the following: [p], [t], [k]. Thus, having in mind Ramasubramaniyan's statement (see, pp. 98-9) that geminate consonants are produced by

- 
3. There is a free variation between [t] and [ð]. But the former seems to be the most frequent variant.
  4. There is also a free variation between [k] and [x]. But the former seems to be the most frequent variant.

two articulations at the same point of articulation without noticeable break in Tamil, we can safely assume that [pp], [tt] and [kk] are phonetically double consonants.

The duration of the double nonobstruent consonants (i.e. [mm], [nn], [ŋŋ], [ll], [ʃʃ], [rr], [RR], [vv], [yy] ) is also as twice as that of the single nonobstruent consonants (i.e. [m], [n], [ŋ], [l], [ʃ], [r], [R], [v], [y] ). An examination of Kym. 28, Kym. 29, Kym. 30, Kym. 31, Kym. 32, Kym. 33, Kym. 38, and Kym. 39 will reveals this fact.

#### 6.2.2 Consonants occurring before [-round] nonconsonants

[p]	+cns	The lower lip forms a stricture of complete
	-app	closure with the upper lip. The release is
	+obs	vigorous when it occurs sentence initially
	-nas	(see, Kym. 10 where the plosion is indicated
	-lat	by a vertical line); but it is not so
	-ret	vigorous when it occurs word initially but
	+fnt	not sentence initially (cf. Kym. 4). The release
	-med	is mostly accompanied by a slight aspiration.
	-bck	The vocal cords are apart and there is
	-low	velic closure. This bilabial plosive occurs
	-rnd	sentence initially and intervocalically in
	-cnt	certain environments (see, R 22). In other
	-vce	
	+asp	

intervocalic positions, it is geminated (see, R 13). Kym. 10 is a tracing of the word [pʌqil] 'study '. This is an imperative and it can be regarded as a sentence. The bilabial plosive in this item can be regarded as occurring in sentence initial position. The voicelessness, plosion, and slight aspiration are clearly seen in this kymographic tracing. For the occurrence of a single bilabial voiceless plosive and double bilabial voiceless plosives in intervocalic position, see, Kym. 4 and Kym. 5 respectively.

[b]

+cns  
-app  
+obs  
-nas  
-lat  
-ret  
+fnt  
-med  
-bck  
-low  
-rnd  
-cnt  
+vce  
-asp

Except for the vibration of the vocal cords and the absence of ~~aspi~~ration, the description is similar to that of [p].

This bilabial voiced plosive occurs only after its homorganic nasal. Kym. 11 is a tracing of the word [alambu] 'wash'.

The phonetic qualities, voicing and plosion are clearly seen in it.

[β] +cns  
 -app  
 +obs  
 -nas  
 -lat  
 -ret  
 +fnt  
 -med  
 -bck  
 -low  
 -rnd  
 +cnt  
 +vce  
 -asp

The lower lip forms a stricture of close approximation with the upper lip. There is velic closure. The flow of the air is forced through the partially obstructed vocal tract producing audible friction.

An examination of Kym. 12 which is a tracing of the phrase [vande β3ɖiyən] 'the boy who came', will reveal the absence of plosion and the presence of voicing and the flow of the air through the mouth. There is a free variation between the voiced [β] and voiceless [β̥] (see, Kym. 13 for the latter). But the former is chosen for the description in this work, since it appears to be the most frequent variant.

[t] +cns  
 -app  
 +obs  
 -nas  
 -lat  
 -ret  
 +fnt  
 +med  
 -bck  
 -low  
 -rnd  
 -cnt  
 -vce  
 +asp

The lips are slightly parted. The tip and the blade of the tongue lie in the regions of the upper-teeth, teeth-ridge and front part of the hard palate. This fact can be verified with the Pgm. 1 where there is a 'wipe-off' in zones 1, 2, and 3. The vocal cords are apart and there is velic closure. The release is vigorous and accompanied by slight aspiration. This denti-alveolar voiceless plosive occurs



sentence initially and intervocalically in certain environments (see, R 22). In other environments, it is geminated (see, R 13). Kym. 14 is a tracing of the word [tirmæ] 'to squeeze'. The plosion and the slight aspiration of this segment are clearly seen in it. For the intervocalic single and double voiceless denti-alveolar plosives, see, Kym. 6 and Kym. 7 respectively (compare Pgm. 2 where the double denti-alveolar plosives were taken up for examination. This palatogram represents the word [ettm] 'lift' where the double denti-alveolar plosives occur. The 'wipe-off' is in zones 1, 2 and 3).

[d]    +cns  
          -app  
          +obs  
          -nas  
          -lat  
          -ret  
          +fnt  
          +med  
          -bck  
          -low  
          -rnd  
          -cnt  
          +vce  
          -asp

The tip of the tongue and the upper-teeth form a stricture of intermittent closure. The closure is so brief in comparison with that of the voiceless [t], it can sometimes be described as a flap. An examination of Kym. 15 will reveal this fact. Though the closure is brief, the release is considerably vigorous. The vertical line in the kymographic tracing of the word



[udapɲu] 'having kicked' (Kym. 15) shows the quality of plosion. There is vibration of the vocal cords and there is no aspiration. While the voiceless [t] is produced by a complete closure formed with the tip and blade of the tongue and the dental and alveolar regions, the voiced [d] is produced by an intermittent closure with the tip of the tongue and the dental region. Thus the former is described as denti-alveolar, whereas the latter can be described as a voiced dental plosive. An examination of Pgm. 3 confirms this fact. Since the contact between the tip of the tongue and the upper-teeth is so brief, the 'wipe-off' of the zones 1 and 2 is not so clear as in Pgm. 1. In Pgm. 1 and Pgm. 2 the 'wipe-off' is in zones 1, 2 and 3. But in Pgm. 3, the 'wipe-off' is only in zones 1 and 2.

The voiced dental plosive occurs intervocalically as a single segment. When it occurs after its homorganic nasal, the contact is not only made between the tip of the tongue and the dental region (i.e. zones 1 and 2) but also between

the blade of the tongue and the alveolar region (i.e. zone 3). Pgm. 4 represents the word [e:ndu]. The 'wipe-off' is in zones 1, 2 and 3. Therefore, the sequence of nasal and plosive can be described as a sequence of denti-alveolar nasal plus voiced denti-alveolar plosive (cf. Kym. 16 which is a tracing of the word [vande] 'that which came'). There is a free variation between the voiced dental plosive [d] and the voiced dental fricative [ð]. But the former is chosen for the present description, since it appears to be the most frequent ~~var~~ variant.

[t]    +cns  
          -app  
          +obs  
          -nas  
          -lat  
          +ret  
          -fnt  
          +med  
          -bck  
          -low  
          -rnd  
          -cnt  
          -vce  
          -asp

The tip of the tongue is curled back and forms a stricture of complete closure with the hard palate (i.e. pre-palatal and mid-palatal regions; see Pgm. 5 where there is 'wipe-off' in zones 5 and 6). The vocal cords are apart; the release is vigorous and there is no aspiration. The voiceless retroflex plosive does not occur sentence initially, or intervocalially as a single segment. It only occurs in its

geminated form in intervocalic position. Kym. 17 is a tracing of the word [ka~~ɹ~~ɹu] 'cuff on head' and it shows the mouth closure, the long occlusion, the absence of voicing, the plosion and the absence of aspiration.

[q]    +cns  
          -app  
          +obs  
          -nas  
          -lat  
          +ret  
          -fnt  
          +med  
          -bck  
          -low  
          -rnd  
          -cnt  
          +vce  
          -asp

The tip of the tongue is curled back and forms a stricture of complete but a brief closure with the hard palate. This can be described as a retroflex flap. Pgm. 6 shows 'wipe-off' in zones 4 and 5. The flap is produced by the 'ballistic' movement of tongue (see, Abercrombie, 1967: 49).

The tongue when passing strikes the roof of the mouth and falls on to the floor of the mouth. A comparison of Pgm. 5 and Pgm. 6 shows that the 'wipe-off' in the former is clear and indicates the complete closure; whereas in the latter, the 'wipe-off' is not clear and it indicates the brief contact between the tongue and the hard palate. Further, Kym. 18 which is a tracing of the word [pʌqi] 'study' shows a brief mouth closure, voicing, absence of

aspiration and a very short plosion for the segment [q]. It occurs intervocally as a single segment and after its homorganic nasal (see, Kym. 19 for the sequence of retroflex nasal and plosive). When it occurs after its homorganic nasal, the release seems to be vigorous.

[t]  
 +cns  
 -app  
 +obs  
 -nas  
 -lat  
 -ret  
 -fnt  
 +med  
 -bck  
 -low  
 -rnd  
 -cnt  
 -vce  
 +asp

The tip of the tongue forms a stricture of complete closure with the alveolar region of the hard palate. The vocal cords are apart, the release is vigorous and accompanied by a slight aspiration. There is velic closure. This nonretroflex alveolar voiceless plosive occurs intervocally only in its geminated form. Kym. 20 is a tracing of the word [a:Rl:ttm] 'it has soaked' and it shows the complete mouth closure, the long occlusion, a slight aspiration and the plosion of the segments

[tt]

[c] +cns  
 -app  
 ([tʃ]) +obs  
 -nas  
 -lat  
 -ret  
 -fnt  
 +med  
 +bck  
 -low  
 -rnd  
 -cnt  
 -vce  
 -asp  
 +palatal

The 'front' of the tongue forms a stricture of complete closure with the <sup>front part of the</sup> hard ~~and back part of the alveolar ridge~~ palate. There is velic closure. The release for other voiceless plosives is so vigorous that the noise which is associated with it (i.e. the release) results entirely from the burst of the escaping compressed air. But in the case of [c] ([tʃ]), at the releasing point, the air passes through the stricture of close approximation resulting in an audible friction. This is said to be affricated release (see, Abercrombie, 1967: 147). The vocal cords are apart during the stricture of complete closure and during the affricated release. Pgm. 7 shows 'wipe-off' in zones 3, 4, 5, and 6. This palato-alveolar affricate does not have its single voiceless counterpart in the dialect under investigation. It occurs only intervocalically as a sequence of double alveolar voiceless plosives and a voiceless fricative which may be symbolized phonetically as [ttʃ]. But

in the present description we symbolize it as [cc]. Kym. 21 is a tracing of the word [uccw] 'dodge'. It illustrates the complete mouth closure and long occlusion for the double alveolar plosives (compare the mouth closure and the long occlusion of the double alveolar plosives in Kym. 20), affrication, and voicelessness.

[j]      +cns  
           -app  
 ([dʒ]) +obs  
           -nas  
           -lat  
           -ret  
           -fnt  
           +med  
           +bck  
           -low  
           -rnd  
           -cnt  
           +vce  
           -asp  
           +palatal

Except for the vibration of the vocal cords, the description is similar to that of [cɟ]. But in this case the alveolar plosive has a very brief closure and the affricated release is not so noisy as that of [c]. This palato-alveolar voiced affricate unlike its voiceless counterpart occurs only as a single segment after its homorganic nasal.

Kym. 22 which is a tracing of the word [keɲɟw] 'plead' illustrates the brief closure for the alveolar plosive and the affricated release. This segment is a single unit which consists of a sequence of voiced alveolar plosive and

a voiced fricative. Phonetically this unit should be transcribed as [d̪]. But in this description, this segment is symbolized as [j]. In Pgm. 8, the 'wipe-off' in zones 3, 4, 5 and 6 confirms that this is a palato-alveolar articulation.

[s]    +cns  
          -app  
          +obs  
          -nas  
          -lat  
          -ret  
          -fnt  
          +med  
          +bck  
          -low  
          -rnd  
          +cnt  
          -vce  
          -asp  
          +palatal

The shape of the active articulator, namely, the tongue, is made with a groove, from front to back. The air that is compressed ~~due to palic closure~~ <sup>by pressure</sup> is forced through this groove resulting in audible friction. ~~The passive articulator is~~ <sup>the</sup> ~~hard~~ <sup>palate</sup>. Due to the groove, the contact is made only ~~at the~~ <sup>on</sup> the two sides of the hard palate. In Pgm. 9, the 'wipe-off' can be seen in both sides of the zones 3, 4 and 5. There is no 'wipe-off' in the middle part of these zones. The vocal cords are apart and there is no aspiration (cf. Kym. 23). This segment can be described as anpalato-alveolar voiceless continuant. It is not doubled and it occurs sentence initially and intervocalically.



[k]    +cns    The 'back' of the tongue forms a strict-  
          -app    ure of complete closure with the velum  
          +obs    or the soft palate. The vocal cords are  
          -nas    apart. The release is vigorous and is  
          -lat    accompanied by slight aspiration (cf.  
          -ret    Kym. 24; Pgm. 10 and Pgm. 11). This  
          -fnt    velar voiceless plosive occurs sentence  
          -med    initially and intervocalically in certain  
          +bck    environments (see, R 22). In intervocalic  
          -low    position, in other environments, it is  
          -rnd    geminated. For the single and double  
          -cnt    intervocalic voiceless velar plosives,  
          -vce    see, Kym. 8 and Kym. 9 respectively.  
          +asp

[g]    +cns    Except for the vibration of the vocal  
          -app    cords, most of the description is similar  
          +obs    to that of [k]. But the release for this  
          -nas    voiced velar plosive is not so vigorous  
          -lat    as that of its voiceless counterpart.  
          -ret    Further, it occurs only after its homor-  
          -fnt    ganic nasal (cf. Kym. 25 and Pgm. 12).  
          -med     
          +bck     
          -low     
          -rnd     
          -cnt     
          +vce     
          -asp

[x]    +cns    The air is forced through between the  
        -app    back of the tongue and the velum result-  
        +obs    ing inaudible friction. The vocal cords  
        -nas    are apart. There is a free variation  
        -lat    between the voiced [ɣ] (cf. Kym. 26) and  
        -ret    the voiceless [x] (cf. Kym. 27) in the  
        -fnt    writer's pronunciation; but we describe  
        +med    only the latter, since it appears to be the  
        +bck    most frequent variant. There is no aspi-  
        -low    ration. The voiceless velar fricative  
        -rnd    does not occur sentence initially. It  
        +cnt    occurs as a single segment intervocalically.  
        -vce    Pgm. 13 shows 'wipe-off' in the region  
        -asp    of soft palate or velum.

[m]    +cns    The lower lip forms a stricture of compl-  
        -app    ete closure with the upper-lip. There is  
        -obs    no velic closure. The air prevented from  
        +nas    passing through the mouth is diverted  
        -lat    through the nose. There is vibration in  
        -ret    of the vocal cords. Single bilabial nasal  
        +fnt    occurs sentence initially, intervocalically,  
        -med    before its homorganic obstruent and  
        -bck    sentence finally. Double bilabial nasals  
        -low    occur only intervocalically (cf. Kym. 28  
        -rnd    and Kym. 29).  
        -cnt  
        +vce  
        -asp

- [n]    +cns       Except for the absence of velic closure  
          -app      and the presence of resonance in the nasal  
          -obs      cavities, the description is similar to  
          +nas      that of [d]. This segment occurs only  
          -lat      before its homorganic voiced plosive (cf.  
          -ret      Pgm. 4 and Kym. 16).  
          +fnt  
          +med  
          -bck  
          -low  
          -rnd  
          -cnt  
          +vce  
          -asp
- [ŋ]    +cns       Stricture of closure is formed like that  
          -app      of [q]. Otherwise the description is  
          -obs      similar to that of other nasals. This  
          +nas      segment occurs intervocalically (cf. Pgm.  
          -lat      14 and Kym. 30) and before its homorganic  
          +ret      voiced obstruent (cf. Kym. 19). Double  
          -fnt      retroflex nasals occur only intervocali-  
          +med      cally (cf. Pgm. 15 and Kym. 31).  
          -bck  
          -low  
          -rnd  
          -cnt  
          +vce  
          -asp
- [ɲ]    +cns       The tip of the tongue forms a stricture  
          -app      of complete closure with the alveolar  
          -obs      region of the hard palate. Otherwise the  
          +nas      description is similar to that of other  
          -lat      nasals. The alveolar nasal segment (cf.  
          -ret      Pgm. 16 where there is 'wipe-off' in zone 3)  
          -fnt      occurs sentence initially, intervocalically  
          +med      (cf. Kym. 32) and sentence finally. The  
          -bck  
          -low  
          -rnd  
          -cnt  
          +vce  
          -asp

double alveolar nasals occur only intervocalically (cf. Pgm. 17 and Kym. 33).

[ɲ]	+cns -app -obs +nas -lat -ret -fnt +med +bck -low -rnd -cnt +vce -asp +palatal	Stricture of closure is formed like that for [c]. But there is no velic closure; there is resonance in the nasal cavities and there is vibration of the vocal cords. This nasal segment occurs only before its homorganic voiced affricate (cf. Pgm. 8 and Kym. 22).
-----	--	--

[ŋ]	+cns -app -obs +nas -lat -ret -fnt -med +bck -low -rnd -cnt +vce -asp	Stricture of closure is formed like that of [k]. Otherwise the description is similar to that of the other nasals. This nasal segment occurs only before its homorganic voiced plosive (cf. Pgm. 12 and Kym. 25).
-----	--	---

- [1]    +cns    The tip and blade of the tongue form a  
        -app    stricture of complete closure with the  
        -obs    alveolar region of the hard palate, so  
        -nas    that there is lateral passage of air-stream  
        +lat    round the sides of the obstruction. There  
        -ret    is velic closure and the vibration of the  
        -fnt    vocal cords. This lateral segment occurs  
        +med    only intervocalically (cf. Pgm. 18 and  
        -bck    Kym. 34). The double nonretroflex laterals  
        ~~-low~~    also occur only intervocalically (cf.  
        -rnd    Pgm. 19 and Kym. 35).  
        +cnt  
        +vce  
        -asp

- [ʃ]    +cns    The tip of the tongue is curled back to  
        +app    form a stricture of complete closure with  
        -obs    the post-alveolar, pre-palatal and mid-  
        -nas    -palatal regions of the hard palate (cf.  
        +lat    Pgm. 20 and Pgm. 21). Otherwise the  
        +ret    description is similar to that of [1].  
        -fnt    Single and double retroflex laterals occur  
        +med    only intervocalically (cf. Kym. 36 and  
        -bck    Kym. 37).  
        -low  
        -rnd  
        +cnt  
        +vce  
        -asp

[r]    +cns    The point of the tongue rises and strikes  
        -app    the alveolar region (see, Pgm. 22 and  
        -obs    Pgm. 23 where there is 'wipe-off' in zone  
        -nas    3). While hitting the passive articula-  
        -lat    tor (i.e. alveolar region), the active  
        -ret    articulator (i.e. the tip of the tongue)  
        -fnt    produces only one single tap. According  
        +med    to Abercrombie (1967: 49) tap is the  
        -bck    appropriate name for this type of conso-  
        -low    nant segment. This segment occurs only  
        -rnd    intervocalically. When a single [r] occurs  
        -cnt    a short single tap is produced. Kym. 38  
        +vce    which is a tracing of the word [varən]  
        -asp    'I will not come', shows a brief mouth closure  
              for this segment. But when double [r]  
              occurs, the result is not two taps; instead,  
              the duration is lengthened (cf. Kym. 39)  
              and there is some friction - apical post-  
              -alveolar - followed by an alveolar tap.  
              A narrow phonetic transcription for this  
              will be: [ɾɾ]; but we are employing the  
              following transcription to show that the  
              single [r] is doubled: [rr]. This trans-  
              cription does not mean a trill (see, [R]  
              below); but it refers to this "friction

plus tap". This can be referred to as a "voiced affricated tap" too, where the friction follows the tap. This can be transcribed as [ɬɬ]. Thus, we can say that there is a free variation between "pre-affricated tap" [ɬɬ] and the "post-affricated tap" [ɬɬ]. Since we are not employing neither of these transcriptions, this difference may not become obvious to the reader.

[R]    +cns  
          -app  
          -obs  
          -nas  
          -lat  
          +ret  
          -fnt  
          +med  
          -bck  
          -low  
          -rnd  
          -cnt  
          +vce  
          -asp

The point of the tongue is curled upwards and slightly back and produces a short post-alveolar trill (cf. Pgm. 24 and Pgm. 25). Kym. 40 which is a tracing of the word [ʌRi] 'know' shows four taps. This quick succession of taps is called a trill. There is velic closure and vibration of the vocal cords. The double consonant of [R] is symbolized [RR] which is a longer trill articulated in the same place.



[y] +cns  
 +app  
 -obs  
 -nas  
 -lat  
 -ret  
 -fnt  
 +med  
 +bck  
 -low  
 -rnd  
 +cnt  
 +vcee  
 -asp  
 +palatal

The shape of the active articulator, namely, the tongue, is made with a groove, from front to back. The central passage of air-stream is not impeded, so that no friction is produced. The passive articulator is the mid-palatal, post-palatal and soft-palate regions of the mouth (cf. Pgm. 26 where the 'wipe-off' is <sup>on</sup> both sides of the zones 6, 7, and 8 for single [y]; Pgm. 27 where the 'wipe-off' is <sup>on</sup> both sides of 6, 7, and 8 for [yy]). There is vibration in the vocal cords and there is velic closure. This palatal approximant consonant occurs in all three positions of a word.

[v] +cns  
 +app  
 -obs  
 -nas  
 -lat  
 -ret  
 +fnt  
 -med  
 -bck  
 -low  
 -rnd  
 +cnt  
 +vce  
 -asp

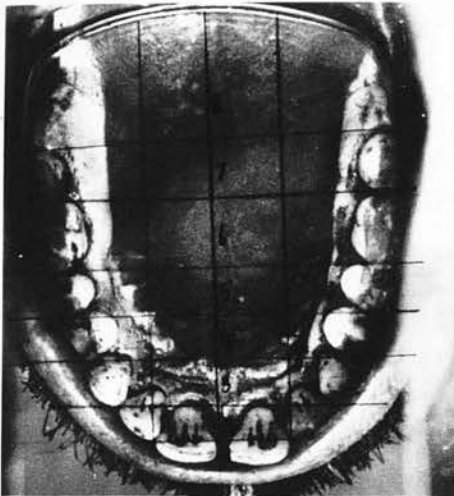
There is contact between the active articulator, namely the lower lip, and the passive articulator, namely the upper-teeth. But this stricture does not produce closure. The central passage of air-stream is not at all impeded by this stricture. Thus no friction is produced. There is velic closure and vibration of the vocal cords. This labio-dental approximant occurs sentence intially and intervocalically.

### 6.2.3 Consonants occurring before [+round] nonconsonants

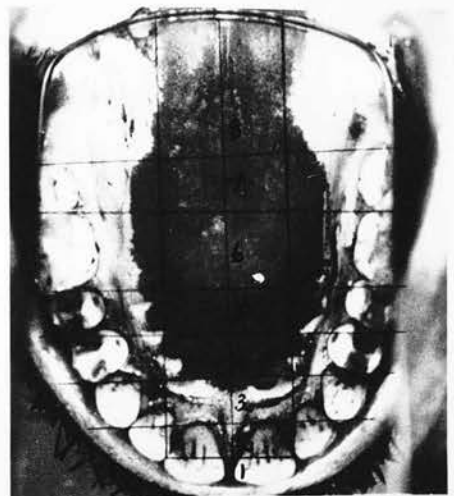
The action of lip rounding for the production of [+rnd] nonconsonants is anticipated during the production of the consonants that precede them. All the consonant segments that are described in 6.2.2. have the feature [-rnd] implying that the lips are spread during the production of these sounds. All these segments can also occur before [+rnd] nonconsonants. Then, they will have the feature [+rnd] implying rounding. Except for this, the descriptions are similar to those of 6.2.2. As an example, consider the segment [k] in the word [kʌ[tʃ] 'cuff on head':

[k]	+cns	The back of the tongue forms a stricture
	-app	of complete closure with the velum or
	+obs	soft palate. The vocal cords are apart.
	-nas	The release is vigorous and accompanied
	-lat	by a slight aspiration. The lips are
	-ret	rounded and protruded. The cheeks are
	-fnt	drawn in.
	-med	
	+bck	
	-low	
	+rnd	
	-cnt	
	-vce	
	+asp	

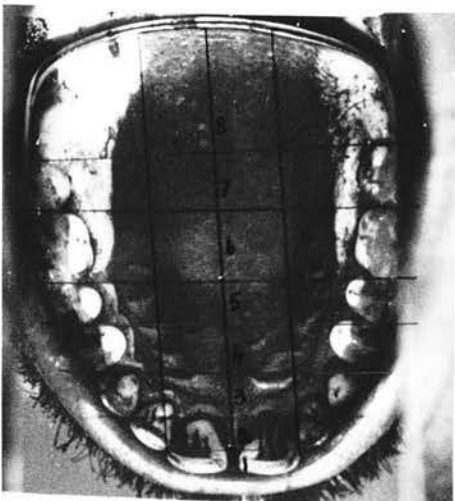
Pgm. 1  
[tɒ:]  
'give'



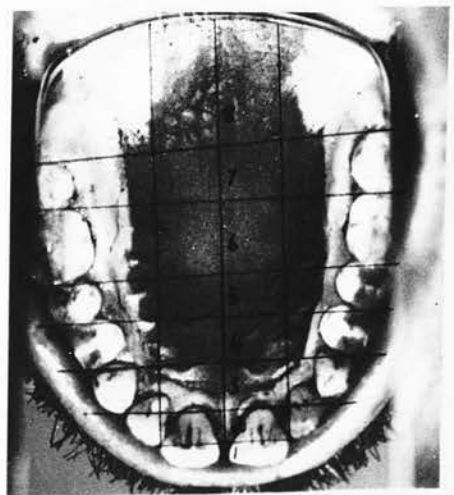
Pgm. 2  
[ettw]  
'lift'



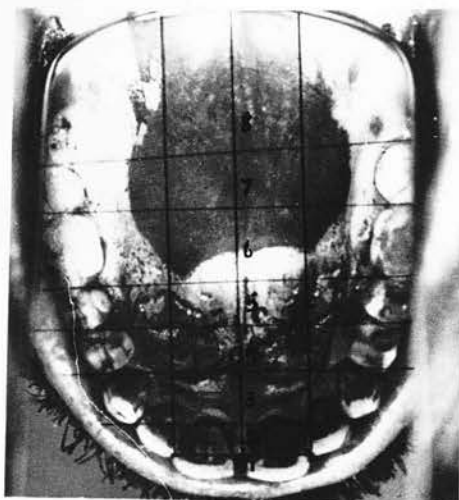
Pgm. 3  
[u:də]  
'to blow'



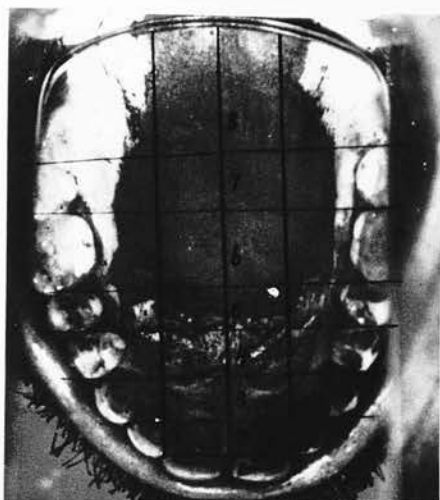
Pgm. 4  
[e:ndw]  
'sustain'



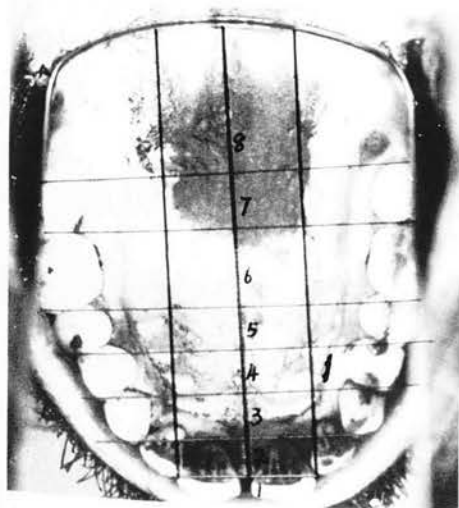
Pgm. 5  
[ʌ:lɪw]  
'cause to dance'



Pgm. 6  
[ʌ:ɔw]  
'dance'



Pgm. 7  
[uccw]  
'dodge'



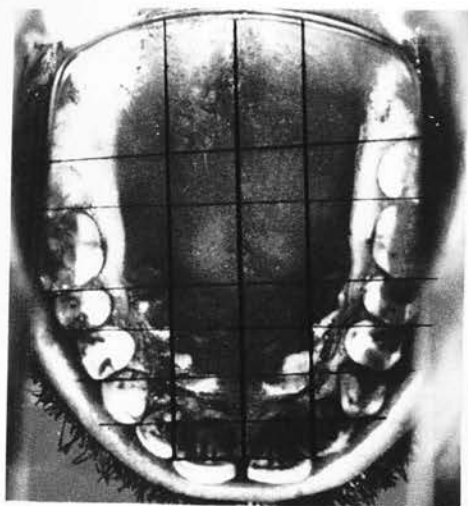
Pgm. 8  
[a:njw]  
'having plucked'



Pgm. 9

[sɔmẽ]

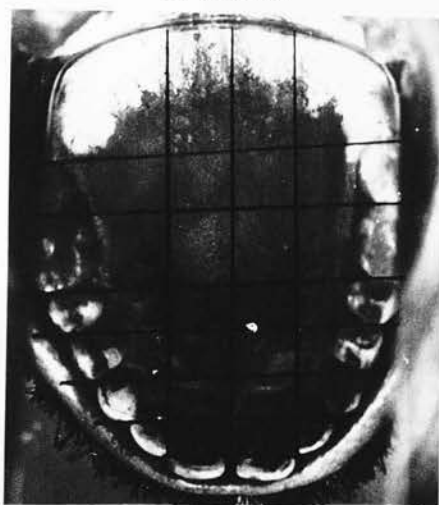
'cook'



Pgm. 10

[kɔmmẽ]

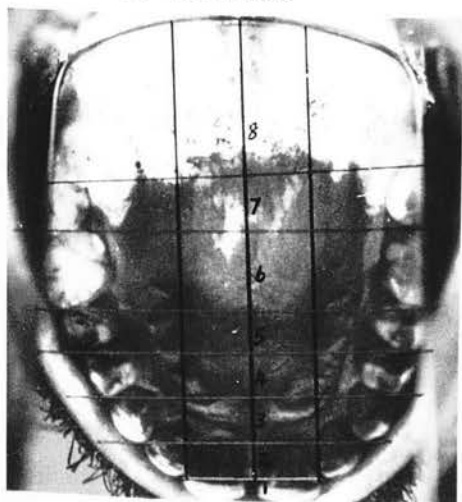
'to parch'



Pgm. 11

[ekkw]

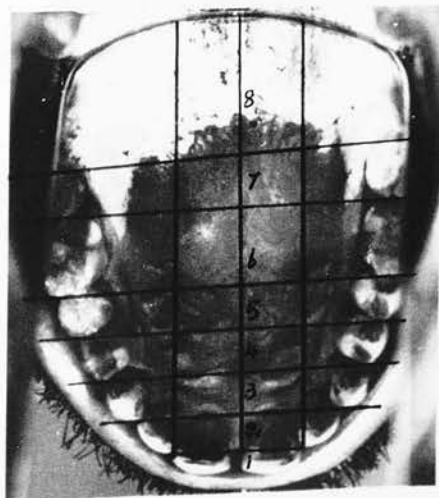
'to shrivel'



Pgm. 12

[e:ŋgw]

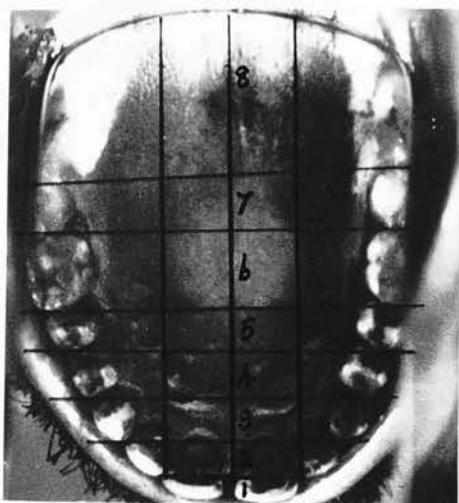
'shock'



Pgm. 13

[a:xə]

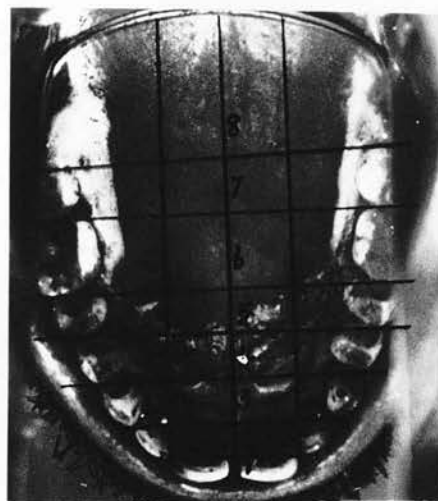
'to become'



Pgm. 14

[m̃i[ə]

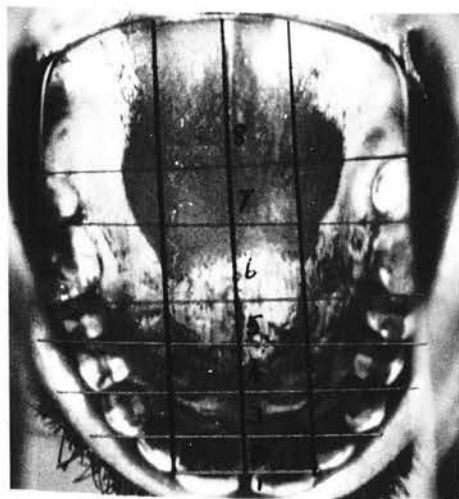
'smell'



Pgm. 15

[ɜŋ[ũ]

'count'



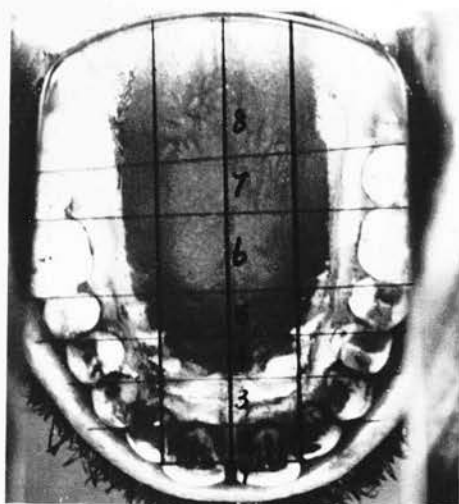
Pgm. 16

[inĩ]

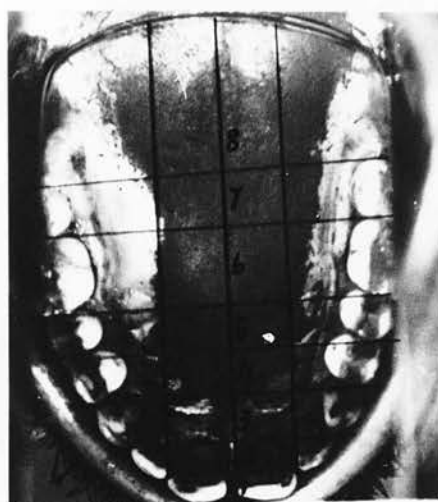
'be sweet'



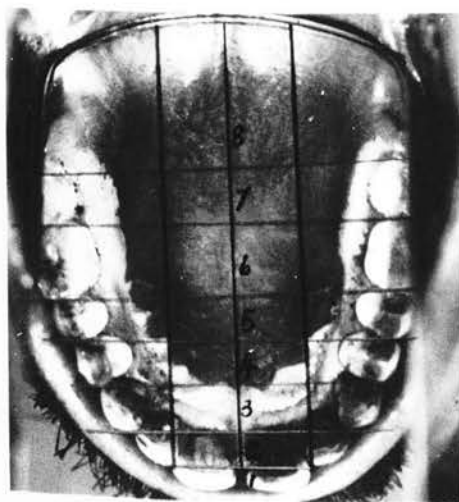
Pgm. 17  
[unnə]  
'to dart'



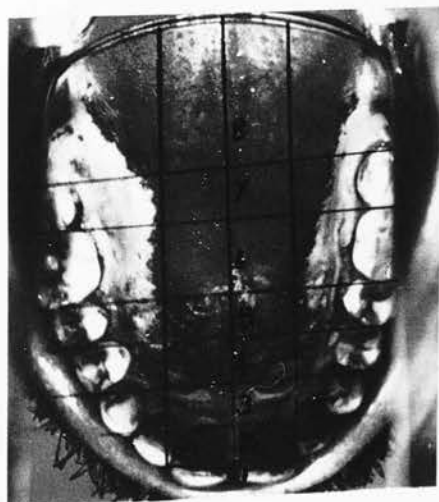
Pgm. 18  
[pali]  
'be successful'



Pgm. 19  
[melleə]  
'slowly'



Pgm. 20  
[ɛɪ]  
'erase'

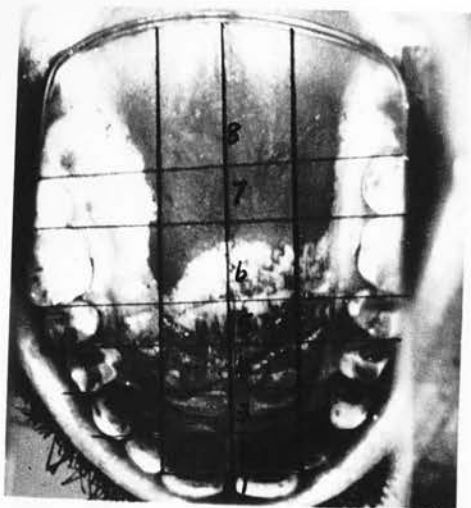




Pgm. 21

[ʌʃʃi]

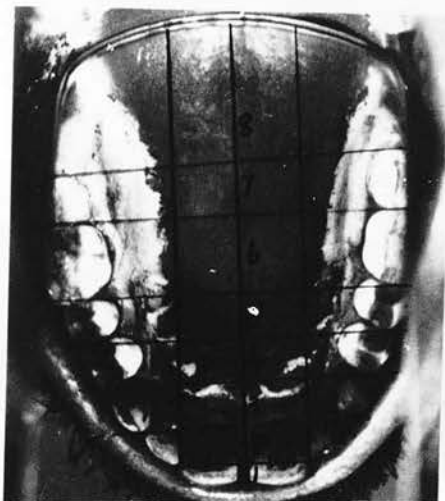
'taken handful'



Pgm. 22

[ari]

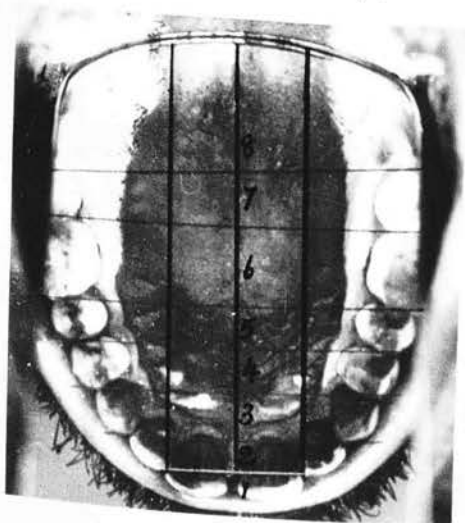
'sift'



Pgm. 23

[u:rrə]

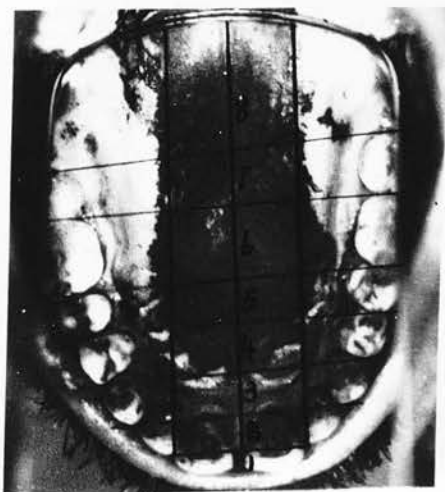
'that which creeps'



Pgm. 24

[ʌRi]

'know'



Pgm. 25

[ʌrrə]

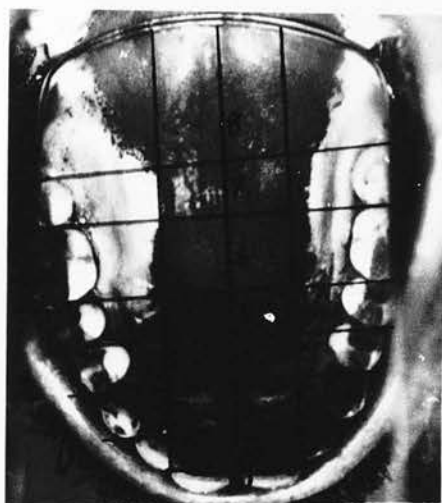
'that which drip'



Pgm. 26

[a:y]

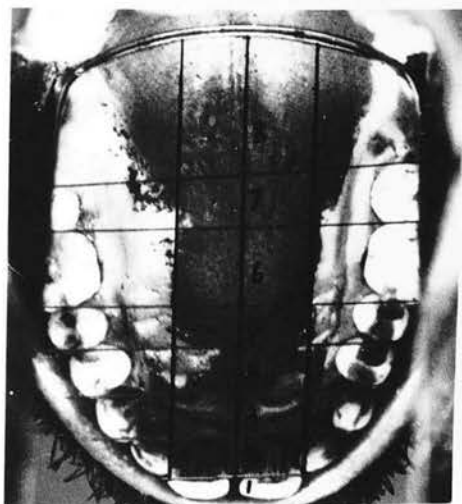
'pluck'

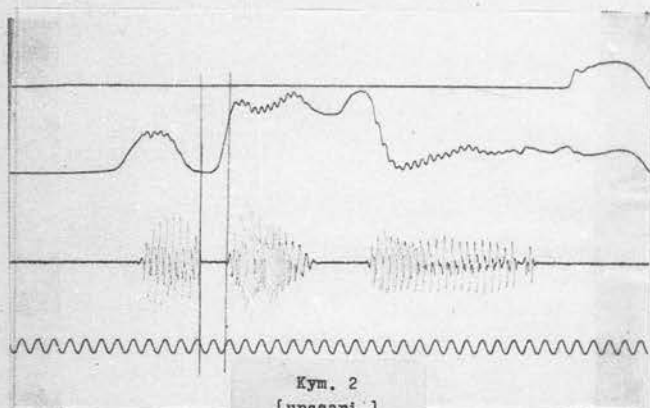


Pgm. 27

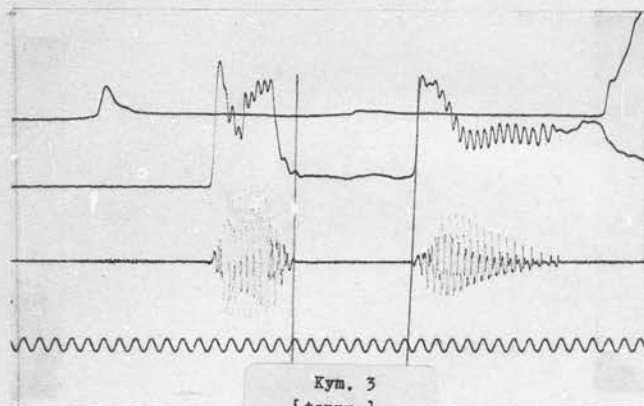
[peyyə]

'to rain'

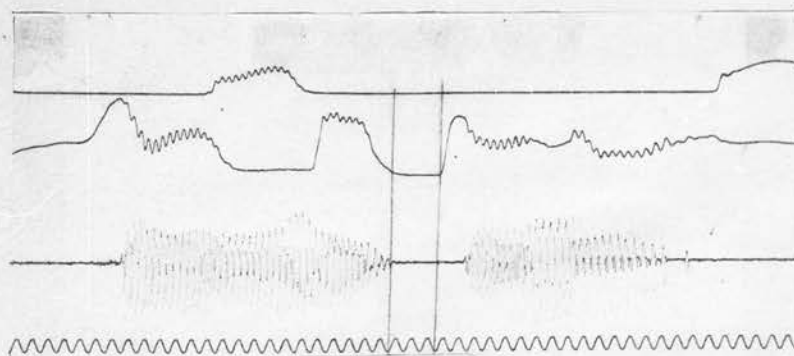




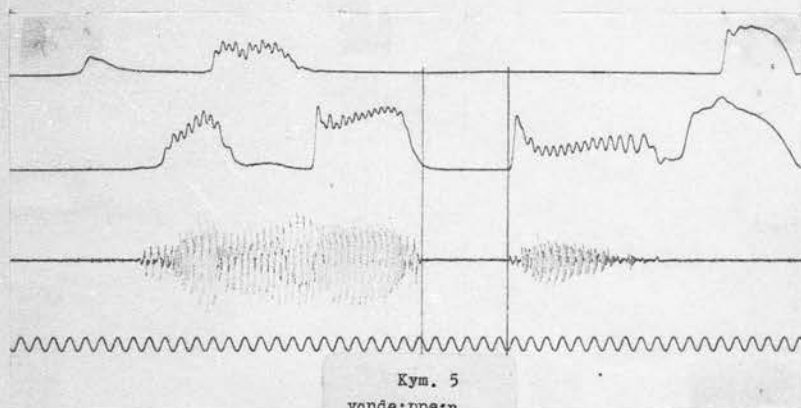
Kym. 2  
[uposari ]  
'entertain'



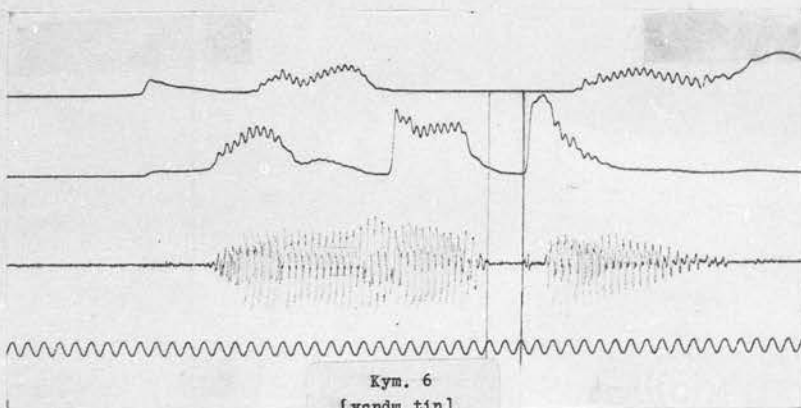
Kym. 3  
[toppm ]  
'escape'



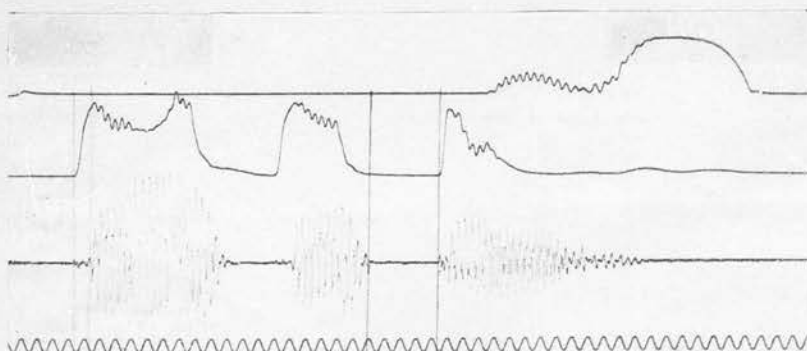
Kym. 4  
se:ndm paq1  
'join and study'



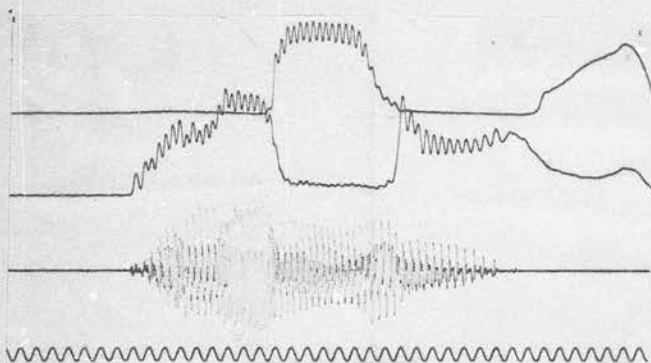
Kym. 5  
vanda:ppair  
'see if comes'



Kym. 6  
[vandu tin]  
'come and eat'

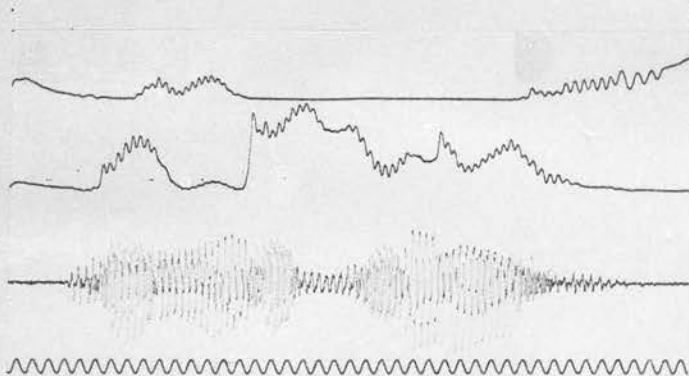


Kym. 7  
[kuduttuttin]  
'give and eat'

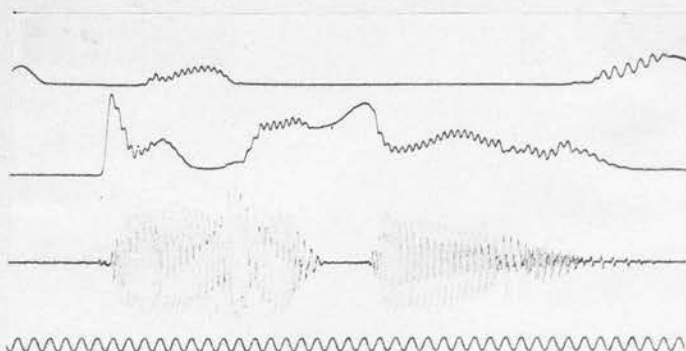


Kym. 11  
[alambw]

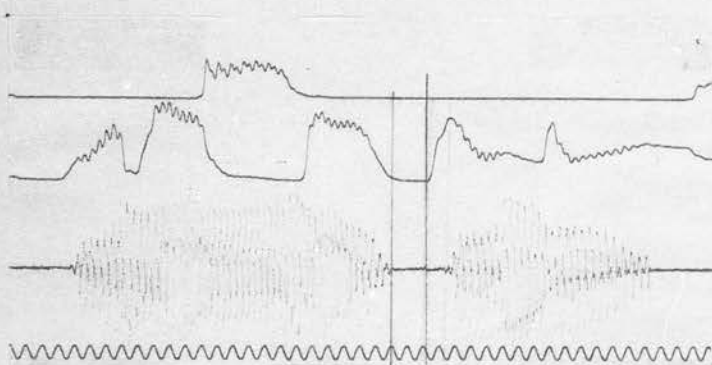
'wash'



Kym. 12  
vanda βəqiyən  
'the boy who came'

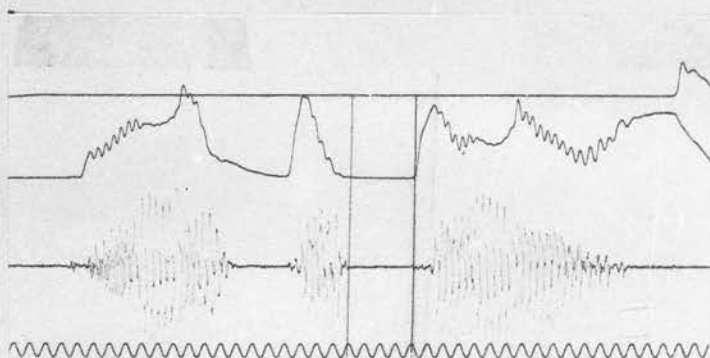


Kym. 13  
topuɣu ɬa:lam  
'hanging bridge'



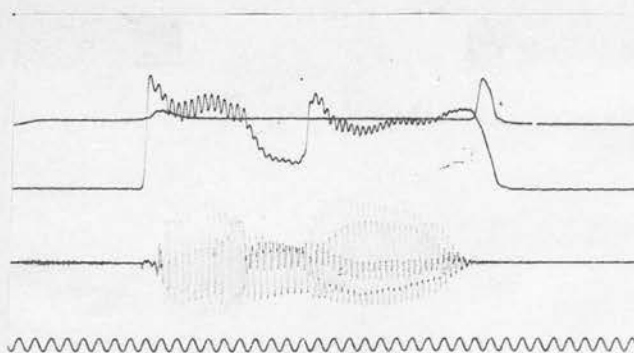
Kym. 8

[irəndu kuɖi]  
'sit and drink'



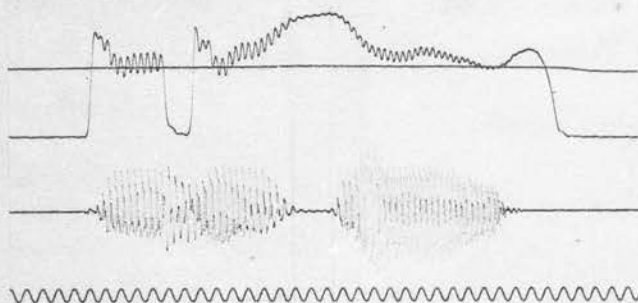
Kym. 9

[ɜɖuttakkuɖu]  
'take and give'

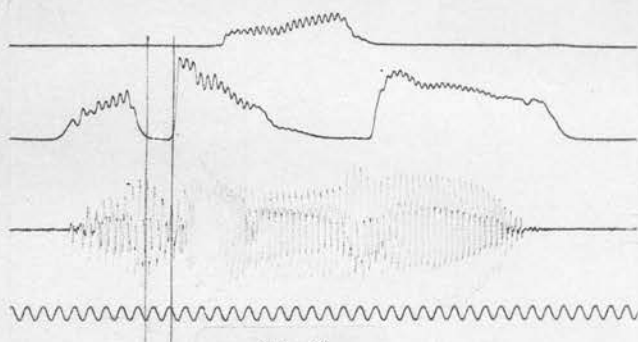


Kym. 10

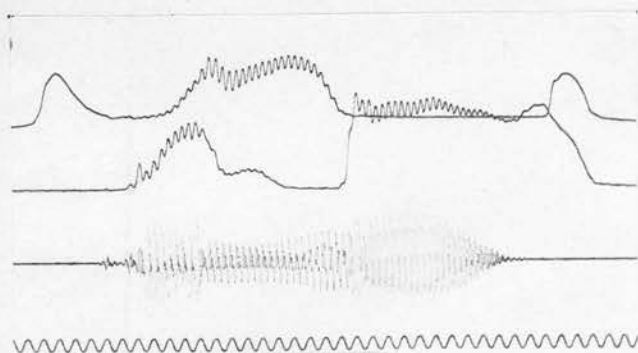
[pati]  
'lower down'



Kym. 14  
[tiruxə]  
'to squeeze'

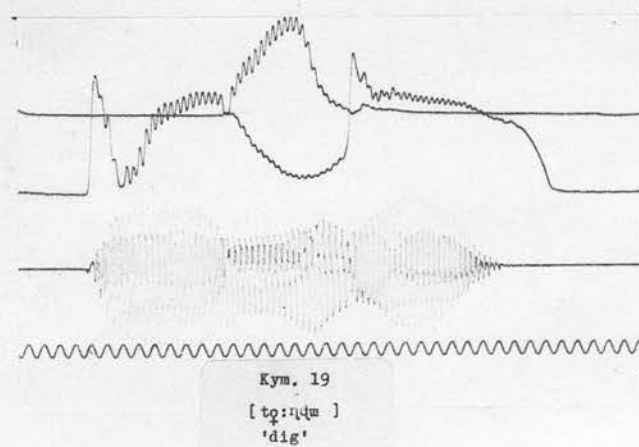
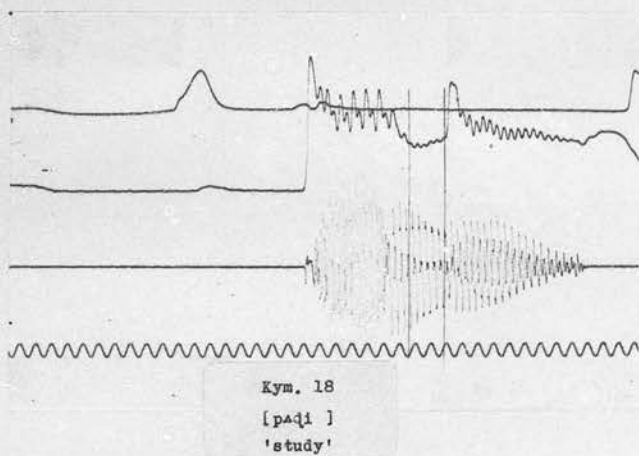
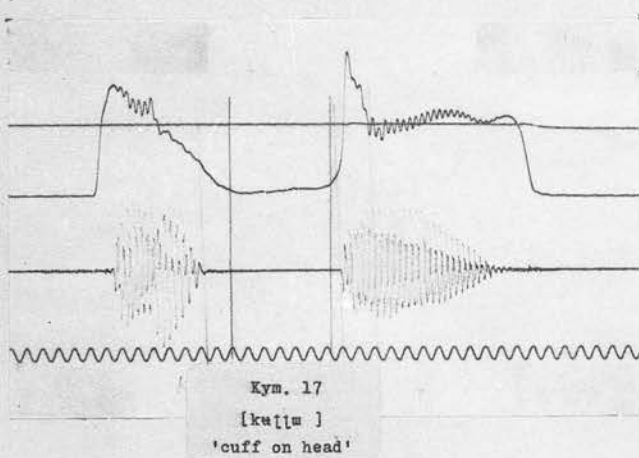


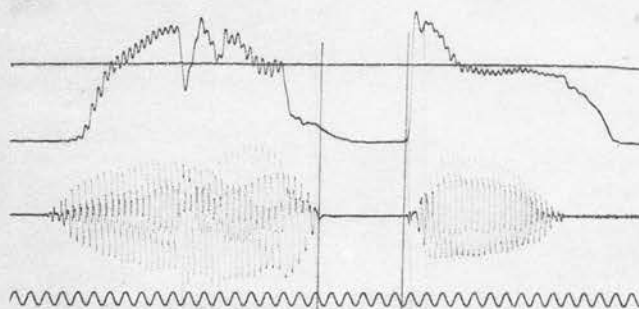
Kym. 15  
[udəŋjə]  
'having kicked'



Kym. 16  
[vəndə]  
'having come'



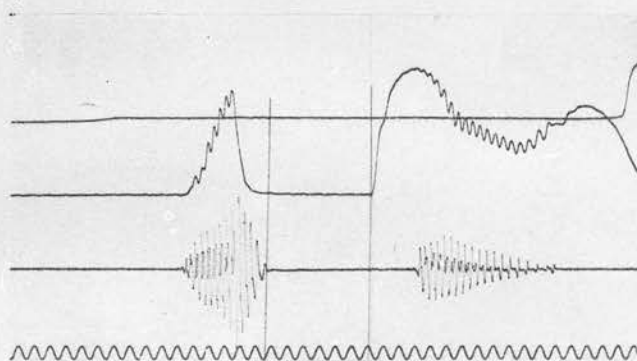




Kym. 20

[wR1:tɪm]

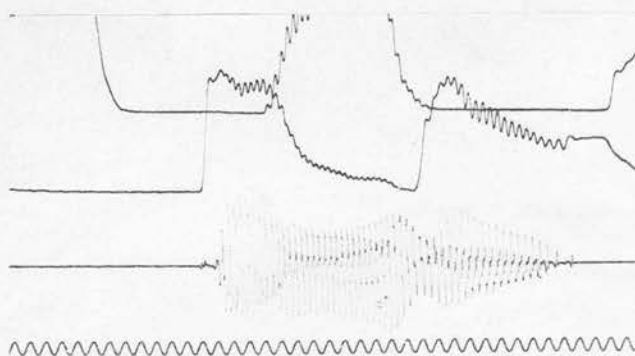
'has soaked'



Kym. 21

[uccw]

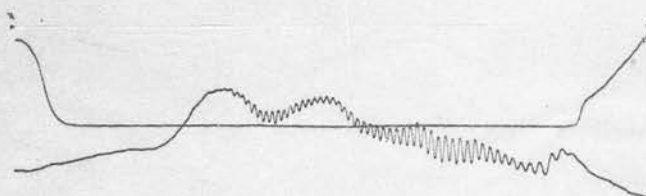
'dodge'



Kym. 22

[keɪɪw]

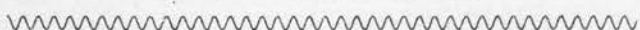
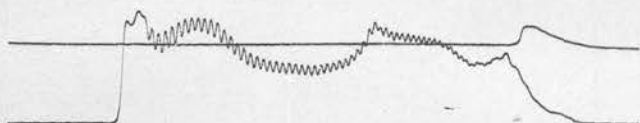
'plead'



Kym. 23

[si:vm]

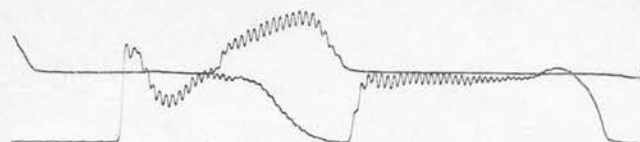
'slash'



Kym. 24

[kavv]

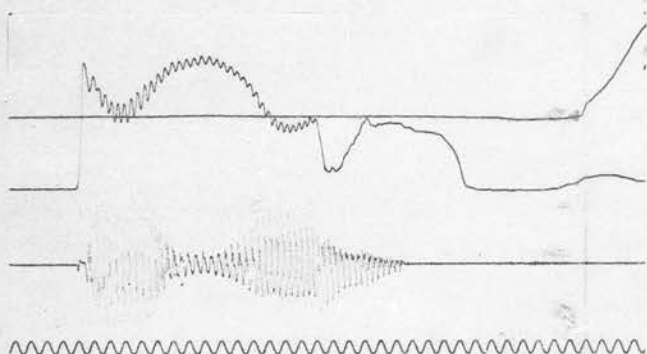
'grab'



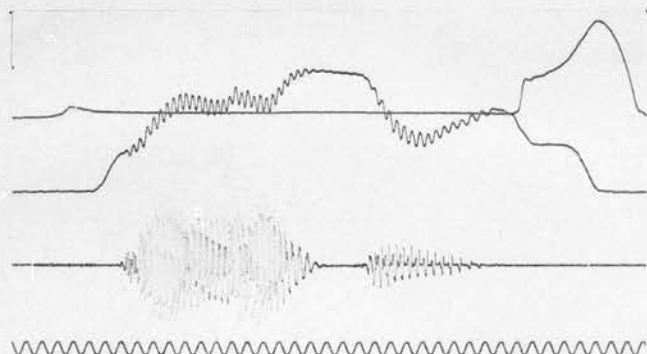
Kym. 25

[po:ngo:]

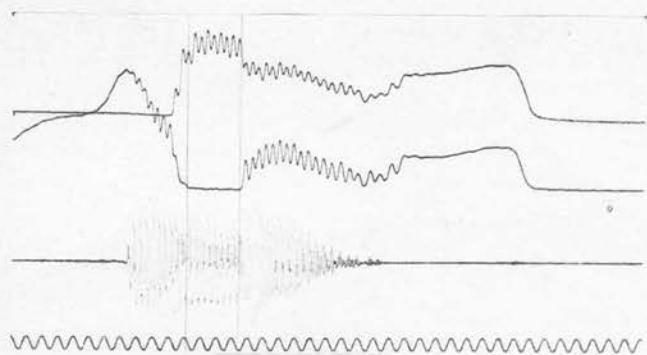
'please go'



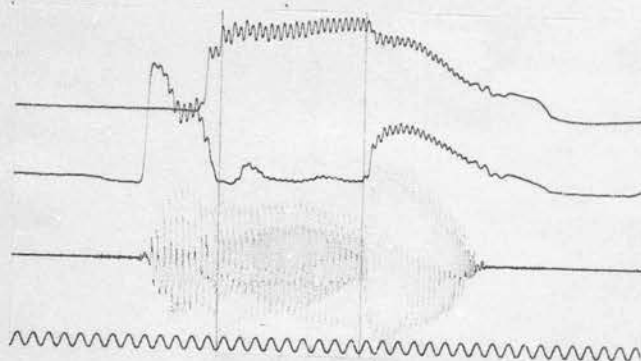
Kym. 26  
[pəɪr]  
'serve'



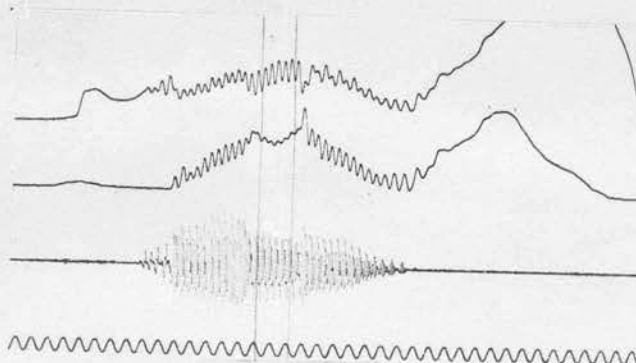
Kym. 27  
[gɪxə]  
'to drip'



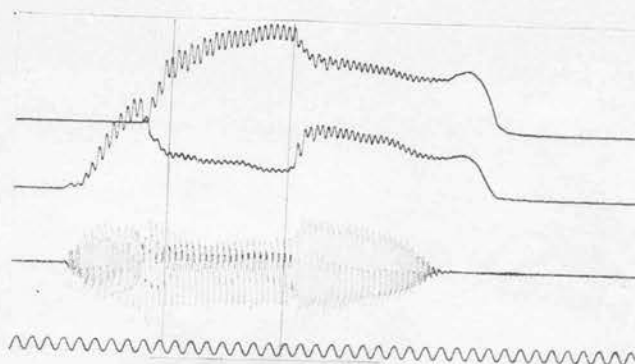
Kym. 28  
[sʌmɪ]  
'carry'



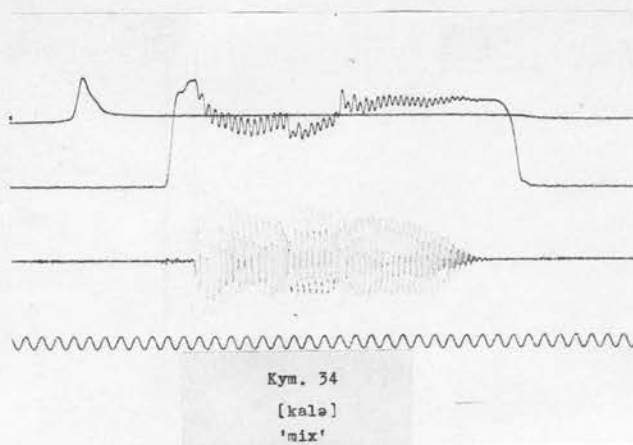
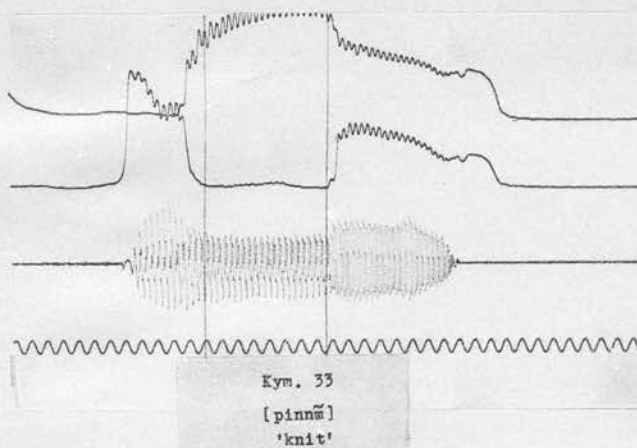
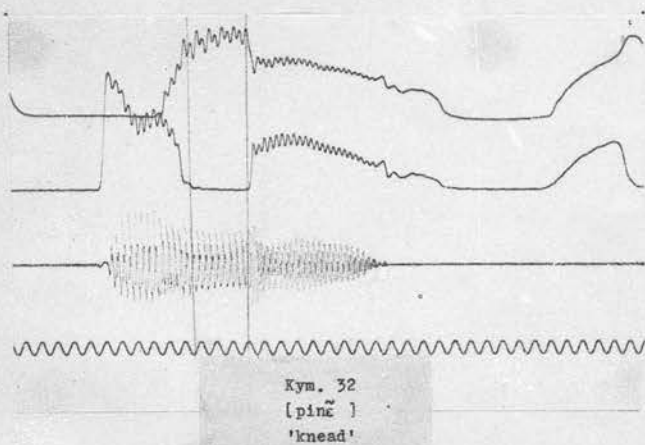
Kym. 29  
[ tummū ]  
'sneeze'

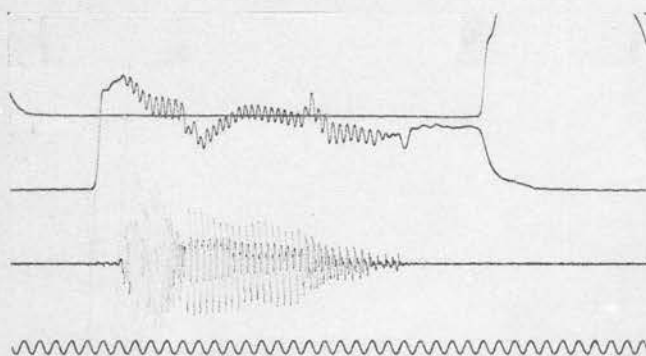


Kym. 30  
[ mālā ]  
'smell'



Kym. 31  
[ ʒuṣ ]  
'count'

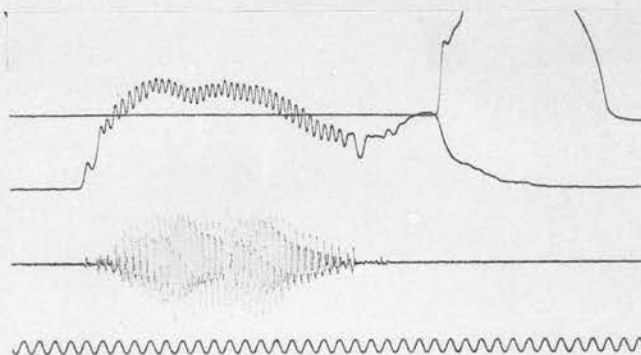




Kym. 35

[kollw]

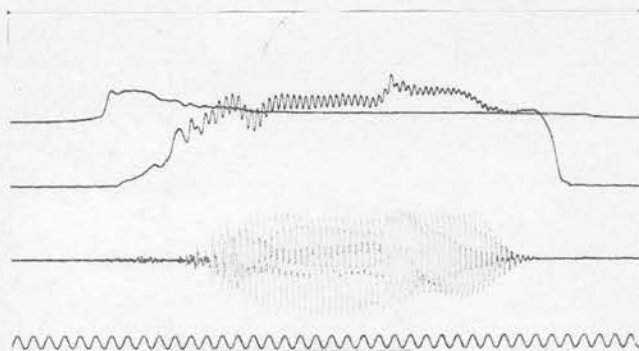
'kill'



Kym. 36

[Δ]w]

'cry'

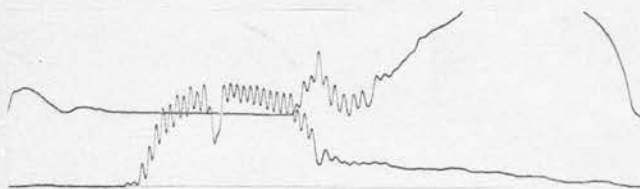


Kym. 37

[Δ]w]

'take handful'

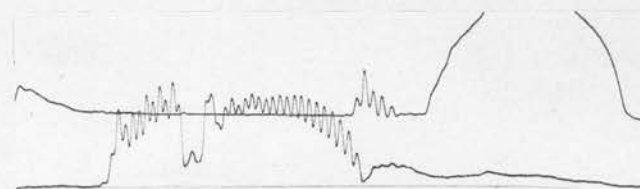




Kym. 38

[varən]

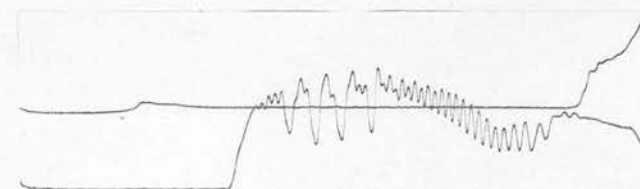
'I won't come'



Kym. 39

[varrən]

'I am coming'



Kym. 40

[tRc]

'water'

### 6.3 Vowels

The members of the set that we have described as non-consonants are characterised by the following features.

Note that among the following primary features, the feature long is introduced by a positive condition ( see, PC 5) and the feature round is introduced by the operation of the redundancy rules R 35 and R 36:

- |           |   |
|-----------|---|
| [+front]  | : articulated with the front of the tongue higher in the mouth than the back of the tongue.   |
| [-front]  | : front of the tongue not higher than the back of the tongue.   |
| [+medial] | : articulated with the front of the tongue which lies below the position where the hard palate ('front' position) and the soft palate ('back' position) meet. |
| [-medial] | : the tongue may lie either below the hard palate or below the soft palate.   |
| [+round]  | : articulated with the back of the tongue higher in the mouth than the front of the mouth. The lips are rounded.  |

- [-round] : back of the tongue is not higher than the front of the tongue.  
Lips are not rounded.
- [+low] : articulated with the highest position of the tongue lower in the mouth than for the [-low] vowels.
- [-low] : articulated with the highest position of the tongue higher in the mouth than for the [+low] vowels.
- [+long] : duration of the articulation is longer than for the [-long] vowels.
- [-long] : duration of the articulation is shorter than for [+long] vowels.

All vowels acquire the feature values 

+app
-obs
-lat
+cnt
+vce
-asp

 by the operation

of the redundancy rules R 1, R 28 and R 43. A value for the features nasal and retroflex is assigned by redundancy rules R 30 and R 32 respectively.

### 6.3.1 The effect of the derived features nasal, retroflex, raised, advanced and retracted

[+nasal] : A vowel that follows a nasal segment acquires

the derived feature nasal. For the preceding nasal consonant the air-flow is through the nasal cavity, but for a vowel, normally, the air-flow is through the mouth cavity only. In this instance, the air-flow through the nasal cavity cannot be stopped abruptly unless there is a segment which is produced by velic closure, following it; thus for the following vowel which has no velic closure, the air-flow is diverted through both the nasal and mouth cavities. Kym. 30 which is a tracing of the word [maŋə] 'smell' show the nasalised vowels [ʌ] and [ə] which follow the nasal consonants [m] and [ŋ] respectively.

[+retroflex]: A vowel that precedes a retroflex consonant acquires the derived feature retroflex. For the production of the preceding vowel, the tongue is slightly curled up and back towards the hard palate in anticipation of the following retroflex consonant.

[+raised] : Only [+low] vowels acquire this feature.

Both short and long 

+fnt
+low

 vowels and 

-fnt
-med
+low

vowels acquire this feature in any

: environment. But the  $\begin{bmatrix} -\text{fnt} \\ +\text{med} \\ +\text{low} \end{bmatrix}$  short

vowel acquires this feature in word final position only. Lower position of the tongue is raised to a position which is not higher than that of the  $[-\text{low}]$  vowels.

$[+\text{advanced}]$  : Only  $[-\text{fnt}]$  and  $\begin{bmatrix} -\text{fnt} \\ +\text{med} \end{bmatrix}$  vowels acquire this derived feature. In normal circumstances, the tongue lies under the soft palate or under the position where the hard palate and soft palate meet, in order to produce the former and the latter respectively. In certain instances, this tongue position is slightly advanced.

$[+\text{retracted}]$  : The front nonlow vowel (i.e. /i/) that occurs before alveolar voiceless plosives acquires the feature retracted. For the vowel that acquires the feature retroflex, the tongue is retracted and curled up and back towards the hard palate. But for the vowel that acquires the feature retracted, the tongue is retracted but not curled up.

### 6.3.2 Feature bundles of the vowel segments

Except for the nasalised vowel segments, other vowel segments are described individually below. Nasalised vowels are indicated by the diacritical mark '̃'. But for other derived features we use different symbols. An example given in 6.3.1. for nasalised vowel will suffice and it is not taken up for description here. Thus we omit the feature nasal in the following descriptions. Each of the following vowel segments except [ə] has its corresponding long variety which is represented by the sign ':' and this can be added to each of them.

[i]	-cns	The position of the front of the tongue
	+app	is higher than the back of the tongue and
	-obs	it lies below the hard palate. The lips
	-lat	are not rounded. Open approximation,
	-ret	velic closure, absence of lateral passage
	+fnt	of air-stream, frictionless continuance,
	-med	vibration of the vocal cords and the absence
	-bck	of aspiration are the same for all vowel
	-low	segments.
	-rnd	
	-lng	
	+cnt	
	+vce	
	-asp	

- [ɪ]    -cns                    : The tongue which lies below the  
          +app               hard palate is slightly curled up  
          -obs               and retracted. The lips are not  
          -lat               rounded.  
          +ret  
          +fnt  
          -med  
          -bck  
          -low  
          -rnd  
          -lng  
          +cnt  
          +vce  
          -asp
- [ ]    -cns                    : The tongue which lies below the hard  
          +app               palate is retracted. The lips are  
          -obs               not rounded.  
          -lat  
          -ret  
          +fnt  
          -med  
          -bck  
          -low  
          -rnd  
          -lng  
          +cnt  
          +vce  
          -asp  
          +retracted
- [e]    -cns                    : Articulated with the front of the  
          +app               tongue. Its position in the vertical  
          -obs               axis (see, Abercrombie, 1967: 56) is  
          -lat               in the mid region. The lips are not  
          -ret               rounded.  
          +fnt  
          -med  
          -bck  
          +low  
          -rnd  
          -lng  
          +~~cnt~~  
          +vce  
          -asp  
          +raised



- [ɪ]      -cns  
           +app  
           -obs  
           -lat  
           +ret  
           +fnt  
           -med  
           -bck  
           +low  
           -rnd  
           -lng  
           +cnt  
           +vce  
           -asp  
           +raised
- : The front part of the tongue is slightly curled up and retracted. The lips are not rounded.
- [u]      -cns  
           +app  
           -obs  
           -lat  
           -ret  
           -fnt  
           -med  
           +bck  
           -low  
           +rnd  
           -lng  
           +cnt  
           +vce  
           -asp
- : Articulated with the back part of the tongue. Its position in the vertical axis is in the high region. The lips are rounded.
- [ʊ]      -cns  
           +app  
           -obs  
           -lat  
           +ret  
           -fnt  
           -med  
           +bck  
           -low  
           +rnd  
           -lng  
           +cnt  
           +vce  
           -asp  
           +advanced
- : Articulated with the back of the tongue. Its position in the vertical axis is in the high region. The lips are rounded. The tip of the tongue is slightly curled up towards the hard palate.

- [u]      -cns                    : Except for the absence of lip rounding,  
           +app                   the description is similar to that of  
           -obs                   [u].  
           -lat  
           -ret  
           -fnt  
           -med  
           +bck  
           -low  
           -rnd  
           -lng  
           +cnt  
           +vce  
           -asp
- [ɥ]      -cns                    : Except for the absence of lip rounding,  
           +app                   the description is similar to that of  
           -obs                   [u].  
           -lat  
           +ret  
           -fnt  
           -med  
           +bck  
           -low  
           -rnd  
           -lng  
           +cnt  
           +vce  
           -asp  
           +advanced
- [o]      -cns                    : Articulated with the back of the tongue.  
           +app                   Its position in the vertical axis is  
           -obs                   in the mid region. The lips are rounded.  
           -lat  
           -ret  
           -fnt  
           -med  
           +bck  
           +low  
           +rnd  
           +lng  
           +cnt  
           +vce  
           -asp  
           +raised

- [ɤ]      -cns  
          +app  
          -obs  
          -lat  
          +ret  
          -fnt  
          -med  
          +bck  
          +low  
          +rnd  
          -lng  
          +cnt  
          +vce  
          -asp  
          +raised  
          +rounded
- : Articulated with the back of the tongue. Its position in the vertical axis is in the mid region. The lips are rounded. The tip of the tongue is slightly curled up towards the hard palate.
- [ɑ]      -cns  
          +app  
          -obs  
          -lat  
          -ret  
          -fnt  
          +med  
          -bck  
          +low  
          -rnd  
          +cnt  
          +vce  
          -lng  
          -asp
- : While articulating this vowel, the middle of the tongue lies in the central region where the hard and soft palates meet. Its position in the vertical axis is in the lower region. The lips are not rounded.
- [a]      -cns  
          +app  
          -obs  
          -lat  
          -ret  
          -fnt  
          +med  
          -bck  
          +low  
          -rnd  
          -lng  
          +cnt  
          +vce  
          -asp  
          +advanced
- : The tongue lies in the central region as for [ɑ]; but for this sound it is slightly advanced.

- [ʌ]    -cns                    : The position of the tongue in the  
          +app                   vertical axis is in the lower region  
          -obs                   as for [a]; but for this sound it is  
          -lat                   to the mid region and the tip of the  
          +ret                   tongue is curled up towards the hard  
          -fnt                   palate.  
          +med  
          -bck  
          +low  
          -rnd  
          -lng  
          +cnt  
          +vce  
          -asp  
          +raised
- [ə]    -cns                    : The tongue which is in the lower  
          +app                   region for [a] is raised to the mid  
          -obs                   region during the articulation of  
          -lat                   this vowel.  
          +ret  
          -fnt  
          +med  
          +low  
          -rnd  
          -lng  
          +cnt  
          +vce  
          -asp  
          +raised
- [ɛ]    -cns                    <sup>is</sup>  
          +app                   : The tongue which ~~is~~ in the lower region  
          -obs                   for [a] is raised to the mid region  
          -lat                   during the articulation of this  
          +ret                   sound. This vowel sound is the result  
          +fnt                   of a contraction of [a] and the palatal  
          -med                   consonant [y]. Thus, it shares the  
          +low                   features of [a] and [y].  
          -rnd  
          -lng  
          +cnt  
          +vce  
          -asp  
          +palatal  
          +raised

The places of the fifteen vowel segments that are discussed above are illustrated in a cardinal vowel figure (Diagram 6.1):

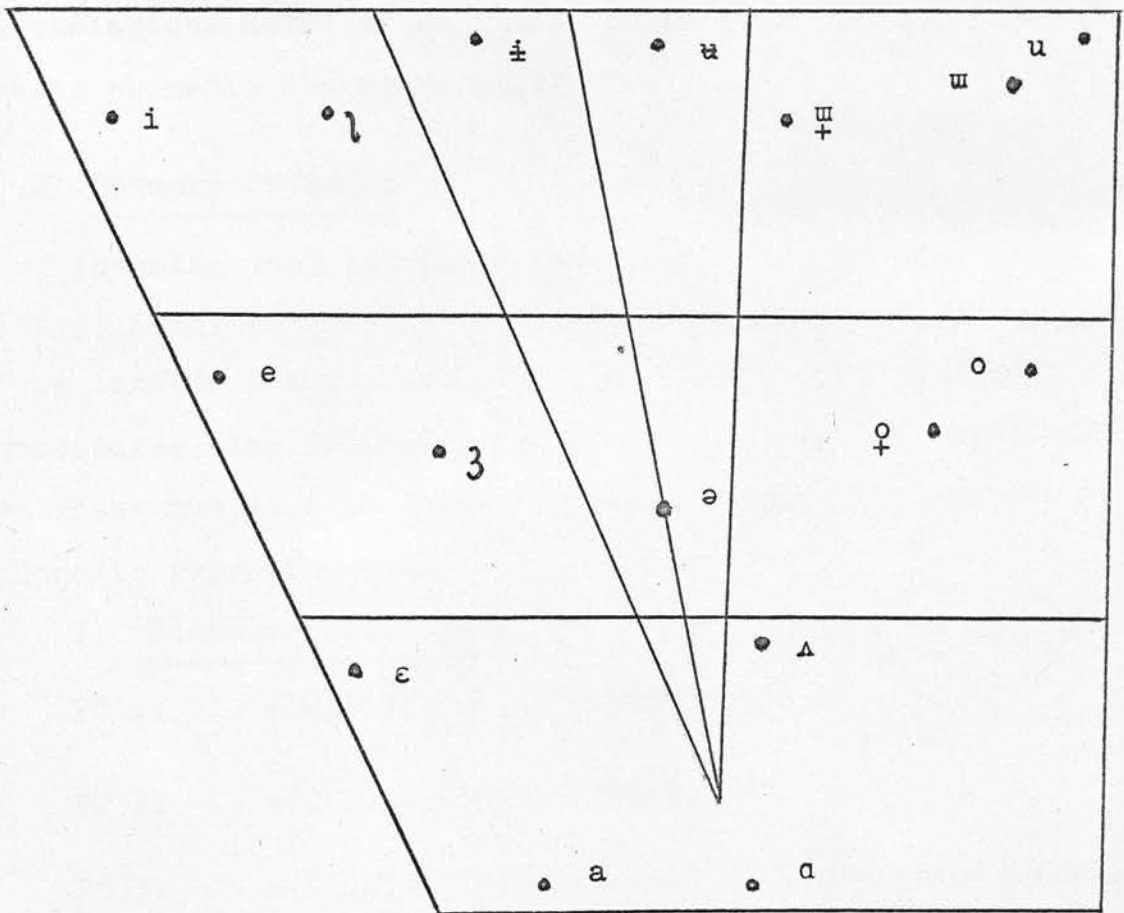


Diagram 6.1 Cardinal Vowel Figure

## CHAPTER SEVEN

## 7. SUMMARY OF RULES AND PROCESS OF REALIZATION

In this chapter, a summary of the rules of the phonology is provided in the first section and in the second section, a few examples are provided to show how the underlying phonological matrices of Tamil verbal forms emerge into their phonetic representations.

7.1 Summary of Rules

Assuming that the phonological matrix insertion rules (PMIR) have inserted the underlying phonological matrices from lexicon 1 and lexicon 2 into the syntactic surface structures, the following rules can be thought of operating on these matrices to convert them into their systematic phonetic representations:

I. Positive conditions

PC 1:  $+(C)V(V)C^R((C)V(V)C(C)V(V)C(V))^R +$

PC 2:  $+(C(V))V^R(C(C)V(V)CVC)^R +/ +C+$

PC 3:  $++(C)V(V)C(C)(C)V^R((V)(V)C(C)V(V)C(C)V(V)(C))^R ++/$   
 $++ CVV ++$

PC 4: If, V V Except V + V  
 Then,  $\begin{bmatrix} \alpha \text{fnt} \\ \text{pmed} \\ \text{r low} \end{bmatrix} \begin{bmatrix} \alpha \text{fnt} \\ \text{pmed} \\ \text{r low} \end{bmatrix}$

PC 5: If, V V  
 Then, V Except V + V  
 Add [-lng] <sup>+lng</sup> to any single V

PC 6: If, ++ C  
 Then,  $\left\{ \begin{array}{c} \begin{bmatrix} +\text{obs} \\ +\text{nas} \end{bmatrix} \\ -\text{ret} \\ \begin{bmatrix} +\text{cns} \\ +\text{app} \end{bmatrix} \end{array} \right\}$

PC 7: If, V(:) ++  
 Then,  $\left\{ \begin{array}{c} \begin{bmatrix} \text{Xfnt} \\ -\text{med} \\ -\text{low} \end{bmatrix} \\ \begin{bmatrix} \text{Xfnt} \\ -\text{med} \\ +\text{low} \\ +\text{lng} \end{bmatrix} \\ \begin{bmatrix} -\text{fnt} \\ +\text{med} \\ +\text{low} \\ \text{Xlng} \end{bmatrix} \end{array} \right\}$

X = either plus or minus.

PC 8: If, C ++  
 Then,  $\left\{ \begin{array}{c} \begin{bmatrix} +\text{nas} \\ -\text{ret} \end{bmatrix} \\ [+lat] \\ \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} \\ \begin{bmatrix} -lat \\ -ret \end{bmatrix} \end{array} \right\}$



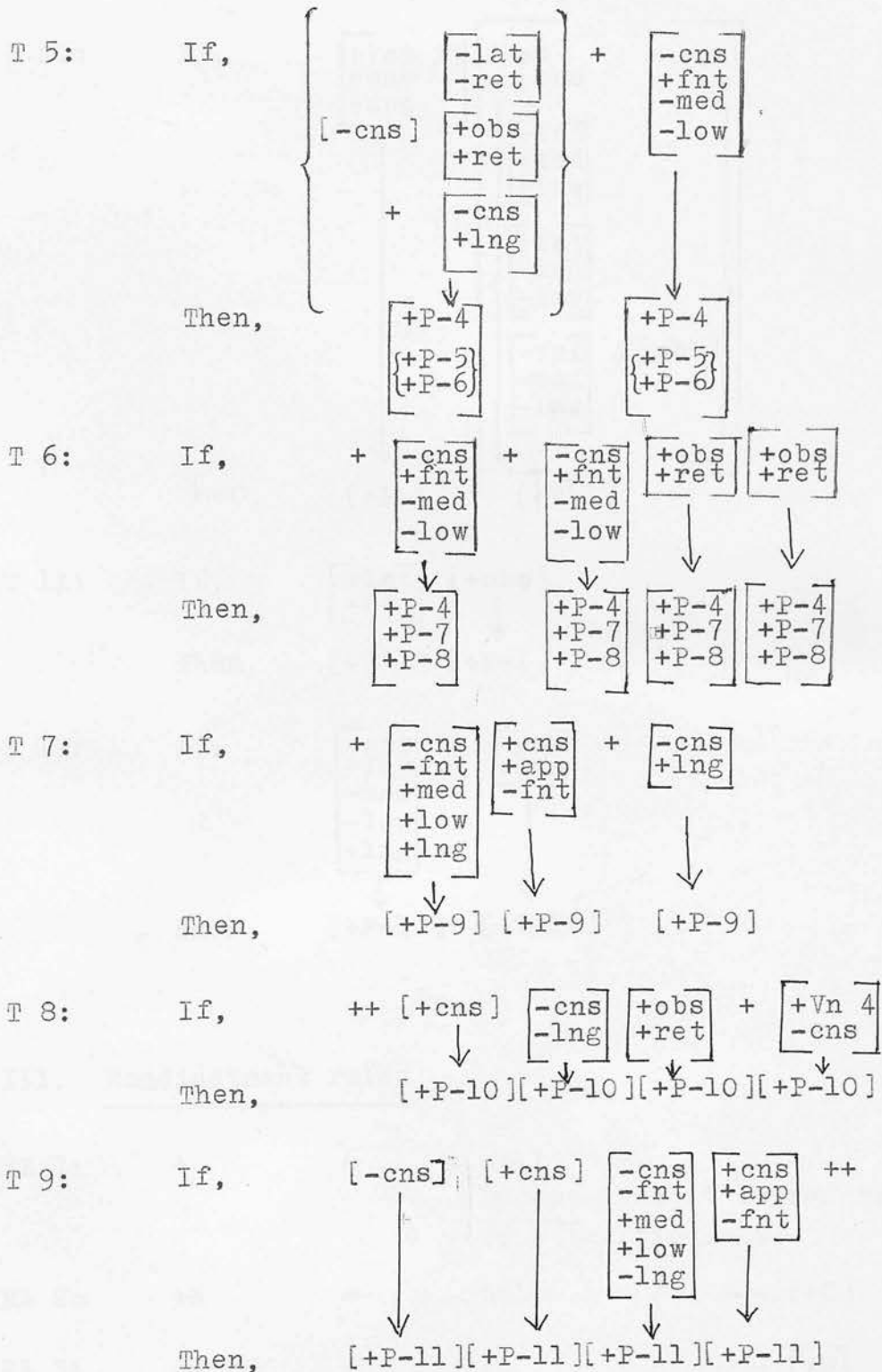
## II. Traffic rules

T 1:        If,         $\begin{bmatrix} +cns \\ +cns \\ +cns \end{bmatrix}$         Except  
              Then,         $\begin{bmatrix} +P-1 \\ +P-1 \\ +P-1 \end{bmatrix}$          $\begin{bmatrix} +cns \\ +app \\ -fnt \end{bmatrix}$          $\begin{bmatrix} +cns \\ +obs \\ -ret \\ \alpha fnt \\ -med \\ \beta bck \end{bmatrix}$          $\begin{bmatrix} +cns \\ +obs \\ -ret \\ \alpha fnt \\ -med \\ \beta bck \end{bmatrix}$

T 2:        If,         $+ \begin{bmatrix} -cns \\ +lng \end{bmatrix} \begin{bmatrix} +cns \\ +app \\ -fnt \end{bmatrix} ++$   
              Then,         $\begin{bmatrix} +P-2 \\ +P-2 \end{bmatrix}$

T 3:        If,         $\begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \begin{bmatrix} -cns \end{bmatrix}$         Except  
              Then,         $\begin{bmatrix} +P-3 \\ +P-3 \end{bmatrix}$          $\begin{bmatrix} +Vst \text{ II} \\ -cns \\ -fnt \\ -med \\ -low \end{bmatrix} + \begin{bmatrix} +G \\ -imp \\ -cns \end{bmatrix}$

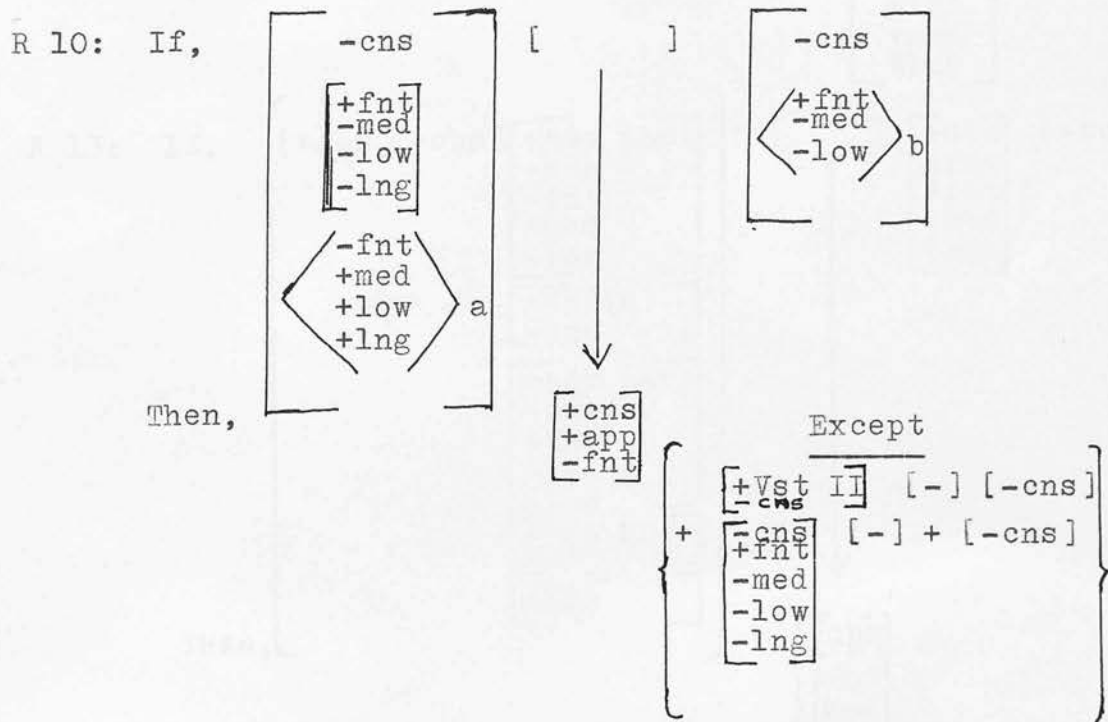
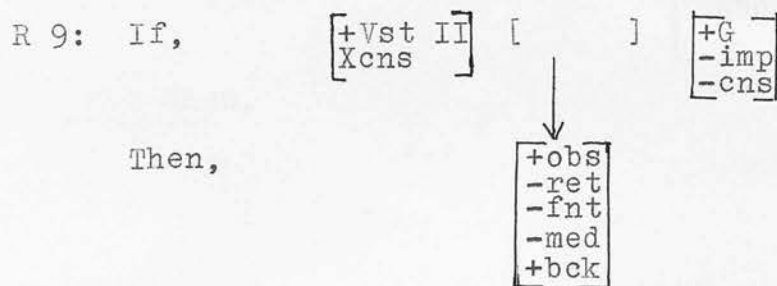
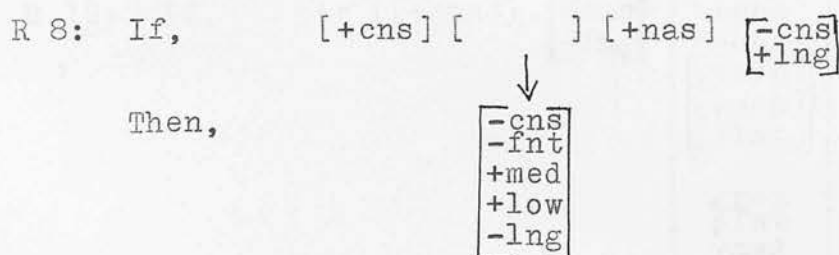
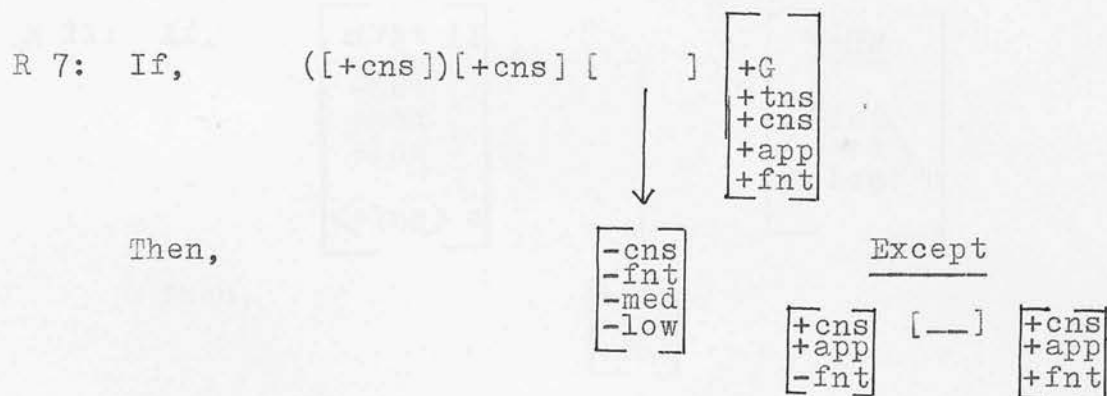
T 4:        If,         $\begin{bmatrix} -cns \\ +lng \end{bmatrix} \begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix}$   
              Then,         $\begin{bmatrix} +P-3 \\ +P-3 \end{bmatrix}$



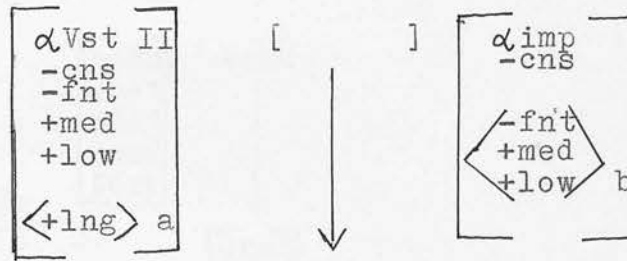


IV. Redundancy rules

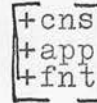
- R 1: If,  $[-cns]$   
       Then,  $\begin{array}{|c|} \hline +app \\ -obs \\ -lat \\ \hline \end{array}$
- R 2: If,  $[+obs]$   
       Then,  $\begin{array}{|c|} \hline -nas \\ -lat \\ \hline \end{array}$
- R 3: If,  $[+nas]$   
       Then,  $[-lat]$
- R 4: If,  $[+ret]$   
       Then,  $\begin{array}{|c|} \hline -fnt \\ +med \\ -bck \\ \hline \end{array}$
- R 5: If,  $\begin{array}{|c|} \hline -cns \\ \alpha fnt \\ \hline \end{array}$   
       Then,  $\begin{array}{|c|} \hline \begin{array}{|c|} \hline \langle -fnt \rangle \\ +med \\ \hline \end{array} a \\ \hline \end{array}$   
        $\downarrow$   
        $\begin{array}{|c|} \hline -\alpha bck \\ \langle -bck \rangle b \\ \hline \end{array}$
- R 6: If,  $\begin{array}{|c|} \hline +cns \\ +app \\ \hline \end{array}$   
       Then,  $\begin{array}{|c|} \hline -obs \\ -nas \\ -lat \\ -ret \\ \hline \end{array}$



R 11: If,

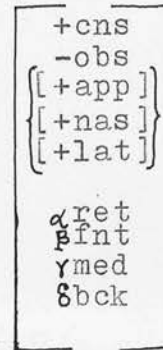
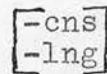


Then,



R 12: If,

++ ([+cns])

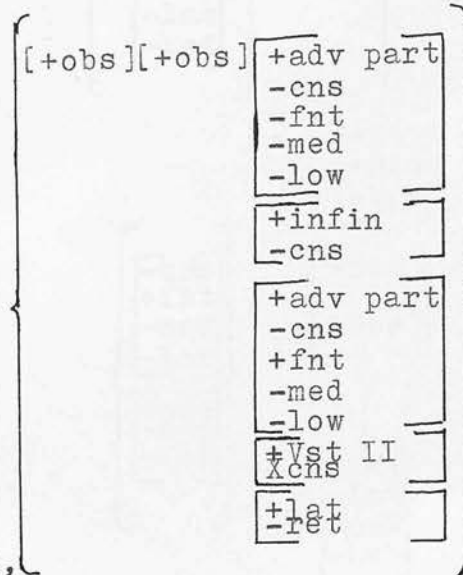


[       ] [-cns]

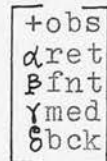
Then,



R 13: If,

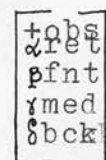


[       ]



[-cns]

Then,



R 14: If,

+obs
$\alpha$ ret
$\beta$ fnt
$\gamma$ med
$\delta$ bck

+obs



Then,

$\alpha$ ret
$\beta$ fnt
$\gamma$ med
$\delta$ bck

R 15: If,

[+nas]

+obs
$\alpha$ ret
$\beta$ fnt
$\gamma$ med
$\delta$ bck



Then,

$\alpha$ ret
$\beta$ fnt
$\gamma$ med
$\delta$ bck

R 16: If

-cns
-fnt
+med
+low
-fnt
-med
-low
+cns
-lat
-ret

[+nas]
[+obs]



Then,

-ret
+fnt
+med
-bck

-ret
+fnt
+med
-bck

R 17: If,

-cns
+fnt
-med
-low
+cns
+app
-fnt

[+nas]
[+obs]

[+obs]



Then,

-ret
-fnt
+med
+bck

-ret
-fnt
+med
+bck



R 18: If,  $\begin{bmatrix} +lat \\ +nas \\ +obs \end{bmatrix}$   
 Then,  $\begin{bmatrix} +ret \\ +ret \end{bmatrix}$

R 19: If,  $\begin{bmatrix} +lat \\ \alpha ret \end{bmatrix} \begin{bmatrix} +obs \\ +obs \end{bmatrix}$   
 Then,  $\begin{bmatrix} \alpha ret \\ -\alpha fnt \\ +med \\ -bck \end{bmatrix} \begin{bmatrix} \alpha ret \\ -\alpha fnt \\ +med \\ -bck \end{bmatrix}$

R 20: If,  $\begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \begin{bmatrix} +obs \end{bmatrix}$   
 Then,  $\begin{bmatrix} -ret \\ +fnt \\ +med \\ -bck \end{bmatrix}$

R 21: If,  $\begin{bmatrix} +obs \end{bmatrix} \begin{bmatrix} +obs \end{bmatrix}$   
 Then,  $\begin{bmatrix} -cnt \\ -vce \end{bmatrix} \begin{bmatrix} -cnt \\ -vce \end{bmatrix}$

R 22: If,  $\left\{ \begin{bmatrix} +nas \\ +obs \end{bmatrix} \begin{bmatrix} +adv \\ -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \text{ part} \right\} \begin{bmatrix} +obs \end{bmatrix}$   
 Then,  $\begin{bmatrix} -cnt \\ -vce \end{bmatrix}$

Except

#  $\begin{bmatrix} -ret \\ -fnt \\ +med \\ +bck \end{bmatrix}$

R 23: If,  $\left\{ \begin{array}{l} [+nas][+obs] \begin{bmatrix} +adv \text{ part} \\ -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \\ \# \end{array} \right\} \begin{bmatrix} +obs \\ -ret \\ -fnt \\ +med \\ +bck \end{bmatrix}$   
 Then,  $\downarrow \begin{bmatrix} +cnt \\ -vce \end{bmatrix}$

R 24: If,  $[-cns] \begin{bmatrix} +obs \\ -ret \\ -fnt \\ Xmed \\ +bck \end{bmatrix} [-cns]$   
 Then,  $\downarrow \begin{bmatrix} +cnt \\ -vce \end{bmatrix}$

Except

$\left\{ \begin{array}{l} \begin{bmatrix} [+obs][+obs] \\ [+nas] \end{bmatrix} \begin{bmatrix} +adv \text{ part} \\ -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \\ \begin{bmatrix} +infin \\ -cns \end{bmatrix} \\ \begin{bmatrix} +adv \text{ part} \\ -cns \\ +fnt \\ -med \\ -low \end{bmatrix} \\ \begin{bmatrix} +Vst \text{ II} \\ -cns \\ -lng \end{bmatrix} \end{array} \right\} \begin{bmatrix} +obs \\ -ret \\ -fnt \\ Xmed \\ +bck \end{bmatrix} [-cns]$

R 25: If, [-cns] 

+obs
-ret
+fnt
Xmed
-bck

 [-cns]

Then,

↓  

-cnt
+vce

Except

{	{ [+obs] } [+obs]	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>+adv part</td></tr><tr><td>-cns</td></tr><tr><td>-fnt</td></tr><tr><td>-med</td></tr><tr><td>-low</td></tr></table>	+adv part	-cns	-fnt	-med	-low	}	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>+obs</td></tr><tr><td>-ret</td></tr><tr><td>+fnt</td></tr><tr><td>Xmed</td></tr><tr><td>-bck</td></tr></table>	+obs	-ret	+fnt	Xmed	-bck	[-cns]
	+adv part														
	-cns														
	-fnt														
-med															
-low															
+obs															
-ret															
+fnt															
Xmed															
-bck															
{ [+nas] }	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>+infin</td></tr><tr><td>-cns</td></tr></table>	+infin	-cns												
+infin															
-cns															
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>+adv part</td></tr><tr><td>-cns</td></tr><tr><td>+fnt</td></tr><tr><td>-med</td></tr><tr><td>-low</td></tr></table>	+adv part	-cns	+fnt	-med	-low									
+adv part															
-cns															
+fnt															
-med															
-low															
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>+Vst II</td></tr><tr><td>-cns</td></tr><tr><td>-lng</td></tr></table>	+Vst II	-cns	-lng											
+Vst II															
-cns															
-lng															

R 26: If, [-cns] 

+obs
+ret

 [-cns]

Then,

↓  

-cnt
+vce

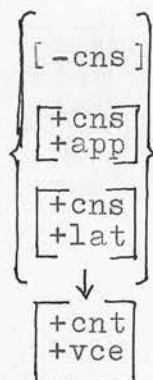
R 27: If, [+nas][+obs][-cns]

Then,

↓  

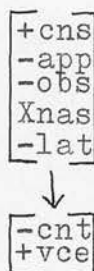
-cnt
+vce

R 28: If,



Then,

R 29: If,



Then,

R 30: If,

[+nas] [-cns]



Then,

[+nas]

R 31: If,

([-nas]) [-cns] [+cns]



Then,

[-nas]

R 32: If,

[-cns]  $\left[ \begin{array}{l} +cns \\ +ret \end{array} \right]$ 

Then,

[+ret]

R 33: If,

([+cns]) [-cns] [-ret]



Then,

[-ret]

R 34: If,

$$\begin{bmatrix} -cns \\ -fnt \\ -med \end{bmatrix}$$

Then,

$$\downarrow$$
  

$$[+rnd]$$
Except

++ (C)V(V)C(C)

$$\begin{bmatrix} - \\ -cns \\ -fnt \\ -med \\ -low \end{bmatrix}$$

R 35: If,

++ (c)V(V)C(C)

$$\begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix}$$

Then,

$$\downarrow$$
  

$$[-rnd]$$

R 36: If,

$$\begin{bmatrix} -cns \\ [+fnt] \\ [+med] \end{bmatrix}$$

Then,

$$\downarrow$$
  

$$[-rnd]$$

R 37: If,

$$[+cns] \quad \begin{bmatrix} -cns \\ +rnd \end{bmatrix}$$

Then,

$$\downarrow$$
  

$$[+rnd]$$

R 38: If,

$$[+cns] \quad \begin{bmatrix} -cns \\ -rnd \end{bmatrix}$$

Then,

$$\downarrow$$
  

$$[-rnd]$$

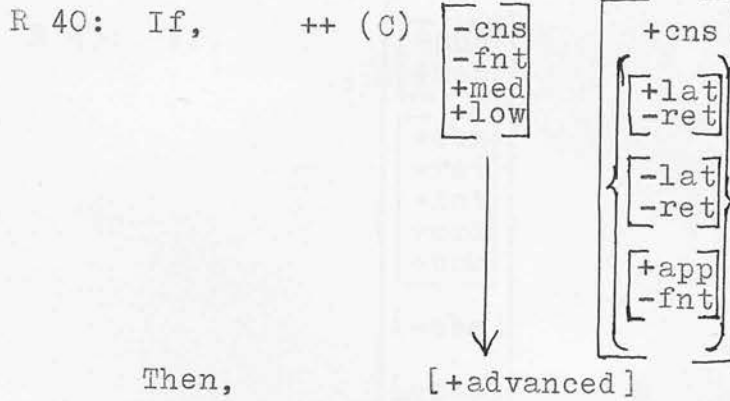
R 39: If,

$$\begin{bmatrix} -cns \\ -med \\ +low \end{bmatrix}$$

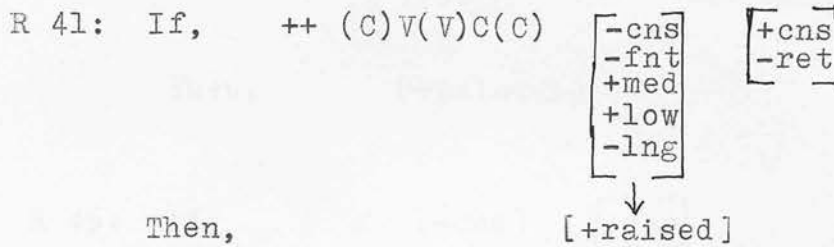
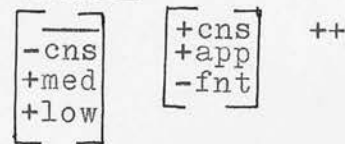
Then,

$$\downarrow$$
  

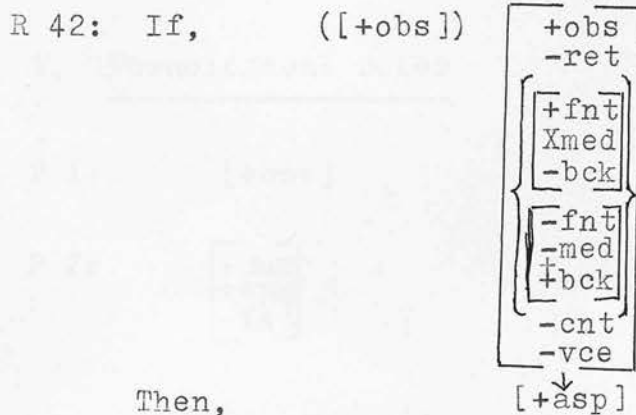
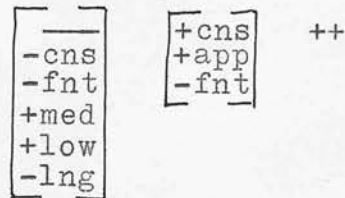
$$[+raised]$$



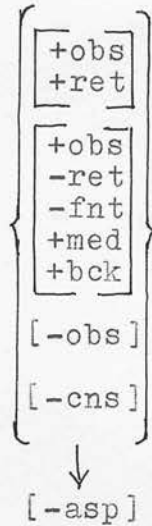
Except



Except

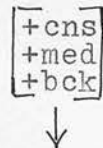


R 43: If,



Then,

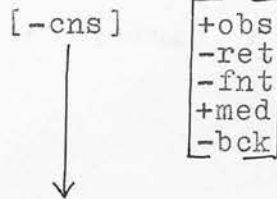
R 44: If,



Then,

$\boxed{+palatal}$

R 45: If,



Then,

$\boxed{+retracted}$

## V. Phonological rules

P 1:  $\boxed{+cns} \rightarrow \text{null} / - \boxed{+cns} \boxed{+cns}$

P 2:  $\left\{ \begin{array}{l} \boxed{+cns} \\ \boxed{+app} \\ \boxed{-fnt} \end{array} \right\} \rightarrow \text{null} / + \boxed{-cns} \boxed{+lng} - ++$



P 3: 
$$\begin{bmatrix} -cns \\ -fnt \\ -med \\ -low \end{bmatrix} \rightarrow null / \left\{ \begin{array}{cc} \text{---} & [-cns] \\ \begin{bmatrix} -cns \\ +lng \end{bmatrix} & \text{---} \end{array} \right\}$$

P 4: 
$$\begin{bmatrix} -cns \\ +fnt \\ -med \\ Xlow \\ -lng \end{bmatrix} \rightarrow null / \left\{ \begin{array}{cc} & \begin{bmatrix} -lat \\ -ret \end{bmatrix} \\ [-cns] & \begin{bmatrix} +obs \\ +ret \end{bmatrix} \\ & + \begin{bmatrix} -cns \\ Xlng \end{bmatrix} \end{array} \right\} + \text{---}$$

P 5: 
$$\begin{bmatrix} -lat \\ +ret \end{bmatrix} \rightarrow [-ret] / \begin{bmatrix} -lat \\ -ret \end{bmatrix} \text{---}$$

P 6: 
$$\begin{bmatrix} +obs \\ -nas \\ -lat \\ +ret \end{bmatrix} \rightarrow [-obs] / [-cns] \text{---} \begin{bmatrix} -obs \\ -nas \\ -lat \\ +ret \end{bmatrix}$$

P 7: 
$$\begin{bmatrix} -cns \\ +fnt \\ -med \\ -low \\ -lng \end{bmatrix} \rightarrow [+lng] / + \text{---} + [+obs][+obs]$$

P 8: SD: 
$$+ \begin{bmatrix} -cns \\ +fnt \\ -med \\ -low \\ +lng \end{bmatrix} + \begin{bmatrix} +obs \\ +ret \\ -fnt \\ +med \\ -bck \end{bmatrix} \begin{bmatrix} +obs \\ +ret \\ -fnt \\ +med \\ -bck \end{bmatrix}$$

1      2      3      4      5

SC: 4  $\rightarrow$   $[-ret]$

5  $\rightarrow$   $[-ret]$

P 9:

$$\begin{bmatrix} -\text{cns} \\ -\text{fnt} \\ +\text{med} \\ +\text{low} \\ +\text{lng} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{fnt} \\ -\text{med} \\ -\text{low} \\ -\text{lng} \end{bmatrix} / + - \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} + \begin{bmatrix} -\text{cns} \\ +\text{lng} \end{bmatrix}$$

P 10:

$$\begin{bmatrix} -\text{cns} \\ -\text{lng} \end{bmatrix} \rightarrow [+ \text{lng}] / ++[+\text{cns}] - \begin{bmatrix} +\text{obs} \\ +\text{ret} \end{bmatrix} + \begin{bmatrix} +\text{Vn } 4 \\ -\text{cns} \\ -\text{fnt} \\ -\text{med} \\ -\text{low} \end{bmatrix}$$

P 11:

$$\begin{bmatrix} -\text{cns} \\ -\text{fnt} \\ +\text{med} \\ +\text{low} \\ -\text{lng} \end{bmatrix} \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \\ +\text{palatal} \end{bmatrix} ++$$

↓

$$\begin{array}{l} -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ +\text{low} \\ -\text{lng} \\ +\text{palatal} \end{array}$$

P 12:

$$\begin{bmatrix} -\text{cns} \\ +\text{fnt} \\ -\text{med} \\ -\text{low} \\ +\text{lng} \end{bmatrix} \rightarrow [-\text{lng}] / - \begin{bmatrix} +\text{cns} \\ +\text{app} \\ -\text{fnt} \end{bmatrix} \begin{bmatrix} -\text{cns} \\ +\text{lng} \end{bmatrix}$$

## 7.2 Process of Realization

The examples that are given from next page illustrate the process by which the underlying phonological matrices reach ~~to~~ their phonetic realizations. Each example begins with a string that can be regarded as the output of the syntactic component. The phonological matrix insertion rules, the positive conditions, the traffic rules, the readjustment rules, the redundancy rules and the phonological rules operate on this string. The result of the application of each rule is given and the number of the rule concerned is provided immediately below the result.

The following abbreviations: [+rais], [+adva], [+retra], and [+pal] are employed in these examples for [+raised], [+advanced], [+retracted] and [+palatal] respectively.

[nʌdɛkk<sup>h</sup>ɪRɛn] 'I am walking'



(3)	++		kee]	++		+tns	+		+III
			VstII			+pst			+mas
									-pl
									-hon
									+hum

[p:ɹ:tta:l] 'if (subject) has run off'



[saRRa sa:qm] 'the shot that is being fired'

[k<sup>h</sup>utt<sup>h</sup>iyudε] 'punch and kick'

## APPENDICES

## 4.1 Introduction to Appendices

As mentioned in 1.5 (p. 58), the Appendix I and Appendix II are regarded as informal lexicon 1 and lexicon 2 respectively. Apart from the syntactic and morphological features, the verbal stems entered in Appendix I and the grammatical morphemes presented in Appendix II, in theory, have to be rendered in phonological matrices. But in the present appendices no such matrices are given. Instead, we employ the informal alphabetic symbols that are referred to in 1.12.3 (p. 102).

Those items which defy the general rules that are presented in the body of the text, are fully specified in the lexicons. Consider for example the verbal stem /cɑɑ/- 'die'. Although this stem belongs to Class I, it takes the Class II past tense marker. Further, the vowel element in the stem undergoes a change when the past tense marker is added. When it takes the present and future tense markers (i.e. Class I markers -/iR/- and -/v/- respectively), the vowel element remains unaltered. But when the past tense marker is added, the vowel becomes a short, front, low one (i.e. cɑɑ → ce ). All Class II past tense markers are in abstract forms and they realize into the actual phonetic forms only after the application of certain redundancy rules. But in the case of /cɑɑ/-, there is no rule that will supply the past tense marker to it. It may not

be economical to frame a rule that will operate only on a single item. Therefore, such exceptional cases are fully specified in the lexicon. In the case of the stem /caq/-, it will be specified in the lexicon as ce +  $\begin{bmatrix} +tr \\ +trns \\ +pst \end{bmatrix}$

In Appendix I, the verbal stems are entered according to the Tamil alphabetical order which The Madras Tamil lexicon has used. The first column provides the verbal stems, the Roman numerals that immediately follow the stems represent the class to which a particular stem belongs to. The features like [+tr 1], [+caus 2] and [+Vn 4] refer to the type of transitive, causative and verbal noun operation to which a particular verbal stem is subject to. If a verbal stem has the feature [+tr], then that stem is intransitive; if it has only the feature [+caus] (i.e. without being preceded by [+tr]), then it is an inherently transitive one. If for example a verbal noun is formed by adding the suffix -/u/ to a stem, then that stem is marked with the feature [+Vn 4]. The numeral in this feature represents the suffix -/u/. But there are certain verbal stems which can become as verbal nouns without adding any suffixes. These stems are simply marked with the feature [+Vn]. That is, no numeral is attached with this feature.

As mentioned in 2.4.1(c) (pp. 142-3), there are certain verbal stems which do not participate in the formation of

imperatives; these stems are marked in the lexicon with the feature [-imp]; the rest of the stems are left unmarked, implying that they can participate in the formation of imperatives.

In Appendix II, each grammatical morpheme carries the necessary syntactic and morphological features. If a grammatical morpheme is not specified for the feature [neg], then it can be used either for the positive or for the negative verb formation.

## APPENDIX I

<u>akal</u>	I,	[+tr 2],	[+caus 1],	[+Vn 3]	'widen'
<u>acay</u>	I,	[+tr 5],	[+caus 2],	[+Vn 7] [+Vn 8]	'move'
<u>accaṭi</u>	II,	[+tr 2],	[+caus 2],	[+Vn 8]	'print'
<u>ataṭi</u>	I,		[+caus 2],	[+Vn 1]	'threaten'
<u>atay</u>	II,		[+caus 2],	[+Vn 8]	'rebound'
<u>atikori</u>	II,		[+caus 2],	[+Vn 8]	'increase'
<u>aticayi</u>	II,	[-imp],	[+tr 4],	[+Vn 8]	'astonish'
<u>atir</u>	I,	[-imp],	[+tr 3],	[+Vn 7]	'echo'
<u>attami</u>	II,	[-imp],		[+Vn 8]	'set, as sun or moon'
<u>aNtori</u>	II,	[+tr 4]		[+Vn 8]	'be desperate'
<u>aṭaNk</u>	I,	[+tr 1],	[+caus 1],	[+Vn 12]	'be submissive'
<u>aṭac</u>	I,	[+tr 3]		[+Vn 1]	'thrust'
<u>aṭay</u>	I,	[+tr 5]	[+caus 2]	[+Vn 1] [+Vn 7] [+Vn 8]	'come ashore, shut, fence'
<u>aṭi</u>	II,		[+caus 2]	[+Vn]	'beat'
<u>aṭu</u>	II,		[+caus 2]	[+Vn 6]	'entertain'
<u>aṭukk</u>	I,		[+caus 2]	[+Vn 1] [+Vn 9]	'pack'
<u>aṇay</u>	I,	[+tr 5]	[+caus 2]	[+Vn 7] [+Vn 8]	'put off, embrace'
<u>aṇaopp</u>	I,		[+caus 2]	[+Vn 1]	'cheat'



<u>aNt</u>	I,	[+caus 2], [+Vn 1]	'entertain, support'
<u>anṇaar</u>	I,	[+tr 3],	[+Vn 1] 'look up'
<u>apokari</u>	II,	[+caus 2], [+Vn 8]	'steal'
<u>app</u>	I,	[+tr 6], [+caus 2], [+Vn 1]	'paste excessively, steal'
<u>am</u>	I,	[-imp], [tr 3],	[+Vn 1] 'feel heavy'
<u>amay</u>	I,	[+tr 5], [+caus 2], [+Vn 7] [+Vn 8]	'become shapeful'
<u>amar</u>	I,	[+tr 2], [+caus 1], [+Vn 3]	'compress'
<u>amuNk</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 2]	'sink'
<u>aNpiṭ</u>	I,	[+tr 3],	[+Vn 1] 'be caught'
<u>ayar</u>	I,	[+tr 3]	[+Vn 7] 'sleep'
<u>araNk</u>	I,	[+tr 1] [+caus 1]	[+Vn 1] 'move' [+Vn 2]
<u>aray</u>	I,	[+tr 5] [+caus 2]	[+Vn 1] 'grind'
<u>araatt</u>	I,	[+tr 3]	[+Vn 1] 'irritate'
<u>araav</u>	I,	[+caus 2]	[+Vn 1] 'sharpen up'
<u>ari</u>	I,	[+tr 5] [+tr 6]	[+Vn 1] 'sift, cut' [+Vn 7] [+Vn 8]
<u>arukkuḷi</u>	II,	[+tr 4]	[+Vn 8] 'feel distas- teful'
<u>aruNp</u>	I,	[-imp], [+tr 3]	[+Vn] 'begin to grow'
<u>aruvaru</u>	II,	[+tr 4],	[+Vn 8] 'feel distas- teful'

<u>aru]</u>	I,	[+tr 2], [+caus 1], [+Vn 1] [+Vn 3]	'wake up suddenly'
<u>aloc</u>	I,	[+tr 3]	[+Vn 1] 'rinse'
<u>ala[i]</u>	I,	[+tr 3]	[+Vn 1] 'blabber'
<u>alaNp</u>	I,	[+tr 3]	[+Vn 1] 'blabber'
<u>alay</u>	I,	[+tr 3], [+tr 5], [+caus 2], [+Vn 3] [+Vn 7]	'wander'
<u>alaR</u>	I,	[+tr 3]	[+Vn 1] 'scream'
<u>alu</u>	II,	[-imp], [+tr 4], [+Vn 8]	'feel tired'
<u>avataani</u>	II,	[+caus 2], [+Vn 8]	'observe'
<u>avamati</u>	II,	[+caus 2], [+Vn 8]	'disrespect'
<u>avaav</u>	I,	[+tr 3] (Vn.: avaa)	'be crazy'
<u>avi</u>	I,	[+tr 5], [+caus 2], [+Vn 1] [+Vn 3] [+Vn 8]	'boil'
<u>avi]</u>	I,	[+tr 5], [+caus 2], [+Vn 8]	'untie'
<u>a]</u>	I,	[+caus 2], [+Vn 4]	'take handful'
<u>a]a</u>	II,	[+caus 2], [+Vn 7] [+Vn 8] [+Vn 9]	'measure'
<u>a]app</u>	I,	[tr 3]	[+Vn 1] 'cheat'
<u>a]ay</u>	I,	[+tr 3]	[+Vn 1] 'touch'
<u>a]u</u>	I,	[+tr 3]	[+Vn 9] 'cry'
<u>a]uk</u>	I,	[-imp], [+tr 3]	[+Vn 1] 'decompose'
<u>a]ut#</u>	I,	[+caus2]	[+Vn 11] 'press'
<u>a]uNt</u>	I,	[+tr 3]	[+Vn 1] 'suffer'
<u>aRay</u>	I,	[+caus 2]	[+Vn] 'slap'
<u>aRavi]</u>	I,	[+caus 2]	[+Vn 1] 'collect'

<u>aRi</u>	I,	[+caus 2], [+Vn 7]	'know'
<u>aRu</u>	I,	[+tr 5], [+caus 2], [+Vn 2] [+Vn 3]	'cut'
<u>anuNk</u>	I,	[+tr 3] [+Vn 1]	'groan'
<u>aak</u>	I,	[+tr 1], [+caus 1], [+Vn 2] [+Vn 12]	'become'
<u>aat</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 2] [+Vn 12]	'dance'
<u>aatar</u>	II,	[+caus 2], [+Vn 8]	'support'
<u>aatt</u>	I,	[+caus 2], [+Vn 1]	'console'
<u>aappi</u>	I,	[+tr 3] [+Vn 1]	'get trapped'
<u>aamooti</u>	II,	[+caus 2], [+Vn 8]	'sanction'
<u>ay</u>	I,	[+caus 2], [+Vn 1]	'pluck'
<u>aaray</u>	I,	[+caus 2], [+Vn 1] [+Vn 7]	'search'
<u>aalaatt</u>	I,	[+caus 2] [+Vn 4] [+Vn 10]	'wave auspicious lights'
<u>aalooci</u>	II,	[+caus 2], (Vn.: aaloocany)	'consider'
<u>al</u>	I,	[+caus 2], [+Vn 9]	'rule'
<u>aar</u>	I,	[+tr 3] [+Vn 2]	'rest'
<u>icay</u>	I,	[+tr 3] [+Vn 1]	'trip'
<u>iti</u>	I,	[+tr 5], [+caus 2] [+Vn 1] [+Vn 7] [+Vn 8] [+Vn 9]	'dismantle'
<u>inaNk</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 2] [+Vn 12]	'agree'
<u>inay</u>	I,	[+tr 5], [+caus 2], [+Vn 1] [+Vn 7] [+Vn 8]	'join, agree'

<u>imoy</u>	II,	[+caus 2], [+Vn 8]	'wink'
<u>iyaNk</u>	I,	[+tr 1], [+caus 1], [+Vn 12]	'move'
<u>iraNk</u>	I,	[+Vn 12]	'feel sorry for'
<u>iray</u>	I,	[+tr 3] [+Vn 3]	'make noise'
<u>iru</u>	II,	[+tr 2], [+caus 1], [+Vn 8]	'sit'
<u>irum</u>	I,	[+tr 3] [+Vn 1]	'cough'
<u>iru]</u>	I,	[-imp], [+tr 2], [+caus 1], [+Vn 4]	'become dark'
<u>ilak</u>	I,	[+tr 1], [+caus 1], [+Vn 12]	'become loose'
<u>ilay</u>	II,	[+tr 4], [+caus 2], [+Vn 8]	'get tired, knit'
<u>il<i>i</i></u>	II,	[tr 4] [+Vn 8]	'grin'
<u>il<i>u</i></u>	II,	[+caus 2], [+Vn 9]	'pull'
<u>iRaNk</u>	I,	[+tr 1], [+caus 1], [+Vn 12]	'alight'
<u>iRay</u>	II,	[+caus 2], [+Vn 8]	'water'
<u>iRa<i>a</i>Nc</u>	I,	[+Vn 1]	'snatch'
<u>iRuk</u>	I,	[+tr 1], [+caus 1], [+Vn 12]	'become tight'
<u>ini</u>	II,	[-imp], [+tr 4], [+Vn 8]	'be sweet'
<u>ii<i>q</i></u>	I,	[+tr 3] [+Vn 1]	'give birth'
<u>ukk</u>	I,	[+tr 3] [+Vn 1]	'become worm eaten'
<u>ucaav</u>	I,	[+caus 2], [+Vn 1]	'inquire'
<u>ucir</u>	II,	[-imp], [+tr 4], [+Vn]	'become alive'
<u>ucuNp</u>	I,	[+tr 1], [+caus 1], [+Vn 8]	'shake'
<u>ucc</u>	I,	[+caus 2] [+Vn 1]	'dodge'

<u>uccari</u>	II,	[+caus 2], [+Vn 8]	'pronounce'
<u>uɕay</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'break'
<u>uɕu</u>	II,	[+caus 2], [+Vn 8]	'dress'
<u>uŋaŋk</u>	I,	[+tr 1], [+caus 1], [+Vn 2]	'dry'
<u>uŋar</u>	I,	[+tr 2], [+caus 1], [+Vn 7]	'feel, think'
<u>utay</u>	I,	[+tr 5], [+caus 2], [+Vn]	'kick'
<u>utav</u>	I,	[+caus 2], [+Vn 10]	'help'
<u>utaR</u>	I,	[+tr 6], [+caus 2], [+Vn 1]	'tremble'
<u>uttari</u>	II,	[+Vn 8]	'suffer'
<u>upp</u>	I,	[-imp], [+tr 3], [+Vn 1]	'bulge out'
<u>upacari</u>	II,	[+caus 2], [+Vn 8]	'entertain'
<u>upateeci</u>	II,	[+caus 2], [+Vn 8]	'preach'
<u>umi</u>	I,	[+Vn 1]	'munch'
<u>uy</u>	I,	[+tr 3], [+Vn 7]	'get over'
<u>uyar</u>	I,	[+tr 2], [+caus 1], [+Vn 7]	'rise up'
<u>ura</u>	II, [-imp],	[+tr 4], [+Vn 8] [+Vn 10]	'increase, become hard'
<u>uraŋc</u>	I,	[+caus 2], [+Vn 1]	'rub'
<u>uray</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'grind'
<u>uray</u>	I,	[+tr 5], [+caus 2], [+Vn 2]	'rub'
<u>uri</u>	I,	[+tr 6], [+caus 2], [+Vn 1] [+Vn 7]	'undress, peel'
<u>uruk</u>	I,	[+tr 1], [+caus 1], [+Vn 5]	'melt'
<u>uruppaɕ</u>	I,	[+Vn 1]	'improve'
<u>uruv</u>	I,	[+caus 2], [+Vn 1]	'unsheath'
<u>ulay</u>	I,	[+tr 5], [+caus 2], [+Vn 3]	'have difficult time'

<u>ular</u>	I,	[+tr 2], [+caus 1], [+Vn 1]	'dry'
<u>ulaatt</u>	I,	[+tr 3] [+Vn 4]	'stroll'
<u>ulaov</u>	I,	[+tr 3] [+Vn 1]	'going round, wander, walk'
<u>uluNp</u>	I,	[+tr 1], [+caus 1], [+Vn 5]	'shake'
<u>uvi</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'boil'
<u>u\akk</u>	I,	[+caus 2], [+Vn 4]	'tread'
<u>u\at\.</u>	I,	[+tr 3] [+Vn 1]	'roll on bed due to illness'
<u>u\att</u>	I,	[+tr 3] [+Vn 1]	'roll on bed while sleeping'
<u>u\ay</u>	I,	[-imp], [+tr 3], [+Vn 3] [+Vn 7]	'ache'
	II,	[+caus 2], [+Vn 8]	'earn, work hard'
<u>u\ar</u>	I,	[+tr 3] [+Vn 1]	'blab'
<u>u\u</u>	I,	[+caus 2], [+Vn 2]	'plough'
	II,	[-imp], [+tr 4], [+Vn 3]	'become worm eaten'
<u>u\ukk</u>	I,	[-imp], [+tr 3], [+Vn 4]	'sprain'
<u>uRaNk</u>	I,	[+tr 3] [+Vn 12]	'sleep'
<u>uRay</u>	I,	[-imp], [+tr 3], [+Vn 1]	'freeze'
	II,	[+tr 4] [+Vn 8]	'be hot'
<u>uRiNc</u>	I,	[+caus 2], [+Vn 1]	'suck'
<u>uRukk</u>	I,	[+caus 2], [+Vn 1]	'frighten'
<u>uRum</u>	I,	[+tr 3] [+Vn 1]	'growl'
<u>uRu\</u>	I,	[+tr 2], [+caus 1], [+Vn 3]	'roll'

<u>uułł</u>	I,	[+caus 2], [+Vn 1]	'feed (animals only)'
<u>uuNł</u>	I,	[+tr 6] [+Vn 1]	'fix firmly'
<u>uut</u>	I,	[+caus 2], [+Vn 1]	'blow'
<u>uutt</u>	I,	[+caus 2], [+Vn 9]	'pour'
<u>uuNp</u>	I,	[+caus 2], [+Vn 1]	'beg'
<u>uur</u>	I,	[-imp] [+Vn 10]	'creep'
<u>ekk</u>	I,	[+caus 2], [+Vn 4]	'draw in the stomach'
<u>eccari</u>	II,	[+caus 2], (Vn.: eccarikkay)	'warn'
<u>ełł</u>	I,	[+tr 3] [+Vn 4]	'reach'
<u>ełu</u>	II,	[+caus 2], [+Vn 8]	'take'
<u>en</u>	I,	[+caus 2], [+Vn 1] [+Vn 11]	'count'
<u>ett</u>	I,	[+caus 2], [+Vn 4]	'lift'
<u>etir</u>	II,	[+caus 2], [+Vn 8]	'oppose'
<u>eri</u>	I,	[+tr 5], [+caus 2], [+Vn 7] [+Vn 8]	'burn'
<u>ełut</u>	I,	[+caus 2], [+Vn 5]	'write'
<u>ełuNp</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 12]	'wake up, rise'
<u>eRi</u>	I,	[+caus 2], [+Vn 1]	'throw'
<u>eeNk</u>	I,	[+tr 3] [+Vn 12]	'yearn with fear'
<u>eec</u>	I,	[+caus 2], [+Vn 5]	'scold'
<u>eeNt</u>	I,	[+caus 2], [+Vn 1]	'hold up'
<u>eemaaR</u>	I,	[+tr 2], [+caus 1], [+Vn 1]	'disappoint'



<u>eey</u>	II,	[+caus 2], [+Vn 8]	'deceive'
<u>eev</u>	I,	[+caus 2], [+Vn 1]	'order'
<u>eer</u>	I,	[+tr 2], [+caus 1], [+Vn 1]	'climb'
<u>ott</u>	I,	[+caus 2], [+Vn 1]	'paste'
<u>otuNk</u>	I,	[+tr 1], [+caus 1], [+Vn 2] [+Vn 12]	'shrink, become narrow'
<u>ott</u>	I,	[+caus 2], [+Vn 1] [+Vn 4]	'touch gently'
<u>otuNk</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 12]	'keep away'
<u>oppuvi</u>	II,	[+caus 2], [+Vn 8]	'hand over'
<u>orumi</u>	II,	[+tr 4], [+Vn 8]	'unite'
<u>oli</u>	I,	[+tr 3], [+Vn 7]	'finish'
	II,	[+tr 4], [+caus 2], [+Vn 8]	'hide'
<u>ooNk</u>	I,	[+tr 6], [+caus 2], [+Vn 1]	'raise'
<u>oot</u>	I,	[+tr 1], [+caus 1], [+Vn 5] [+Vn 12]	'run'
<u>oot</u>	I,	[+caus 2], [+Vn 1]	'advise secretly'
<u>ooy</u>	I,	[+tr 5], [+caus 2], [+Vn 7]	'rest'
<u>ooraaɬɬ</u>	I,	[+caus 2], [+Vn 4]	'sing lullaby'
<u>kakk</u>	I,	[+caus 2], [+Vn 1]	'vomit'
<u>kaca</u>	II,	[-imp], [+tr 4], [+Vn 8]	'taste bitter'
<u>kacaNk</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 2]	'squeeze'
<u>kaci</u>	I,	[+tr 3], [+Vn 1]	'ooze'
<u>kaɬɬ</u>	I,	[+caus 2], [+Vn 4]	'bind'
<u>kaɬa</u>	II,	[+tr 2], [+caus 1], [+Vn 3]	'smuggle'
		[+caus 2], [+Vn 8]	'cross'

<u>kaṭay</u>	I,	[+caus 2], [+Vn 1]	'mash'
<u>kaṭi</u>	II,	[+tr 6], [+caus 2], [+Vn]	'scratch, bite'
<u>kaṭu</u>	II,	[-imp], [+tr 4], [+Vn 8]	'be painful'
<u>kaṇakaṇa</u>	II,	[-imp], [+tr 4], [+Vn 8]	'feel feverish'
<u>kaṇi</u>	II,	[+caus 2], [+Vn 8]	'draw astro- logical chart'
<u>kaṇṭ</u>	I,	[-imp], [+Vn 1]	'become hard'
<u>kaṇṭi</u>	II,	[+caus 2], [+Vn 8]	'punish'
<u>katt</u>	I,	[+tr 3], [+Vn 1]	'shout'
<u>kattiri</u>	II,	[+caus 2], (Vn.: kattirikṇay)	'cut'
<u>katakata</u>	II,	[-imp], [+tr 4], [+Vn 8]	'feel feverish'
<u>katay</u>	II,	[+tr 4], [+Vn]	'talk'
<u>kataR</u>	I,	[+tr 3], [+Vn 1]	'cry'
<u>kam</u>	I,	[-imp], [+tr 3], [+Vn 1]	'parch'
<u>kamaR</u>	I,	[-imp], [+tr 3], [+Vn 1]	'boil excess- ively'
<u>kamokama</u>	II,	[-imp], [+tr 4], [+Vn 8]	'give sweet smell'
<u>karakara</u>	II,	[-imp], [+tr 4], [+Vn 8]	'produce a rough noise'
<u>karay</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'mix, dissolve'
<u>karuk</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 2]	'burn'
<u>kal</u>	I,	[+caus 2], [+Vn 4]	'sift, dig'
<u>kala</u>	II,	[+caus 2], [+Vn 8] [+Vn 9]	'mix'

<u>kalakala</u>	II, [-imp], [+tr 4], [+Vn 8]	'produce hilarity'
<u>kalaNk</u>	I, [+tr 1], [+caus 2], [+Vn 1] [+Vn 12]	'stir up'
<u>kalay</u>	I, [+tr 5], [+caus 2], [+Vn 7]	'chase'
<u>kav</u>	I, [+caus 2], [+Vn 4]	'grab'
<u>kavani</u>	II, [+caus 2], [+Vn 8]	'look after, observe'
<u>kaviḷ</u>	I, [+tr 5], [+caus 2], [+Vn 1]	'turn upside down'
<u>kaḷay</u>	II, [+tr 4] [+Vn 8]	'get tired'
<u>kaḷar</u>	I, [+tr 2], [+caus 1], [+Vn 9]	'become loose, undress'
<u>kaḷi</u>	I, [+tr 5], [+caus 2], [+Vn 1]	'deduct'
<u>kaḷuv</u>	I, [+caus 2], [+Vn 1]	'wash'
<u>kaRa</u>	II, [+caus 2], [+Vn 9]	'milk'
<u>kaRakaRa</u>	II, [-imp], [+tr 4], [+Vn 8]	'produce harsh noise'
<u>kaRu</u>	II, [-imp], [+tr 4], [+Vn 8]	'become dark'
<u>kaRuv</u>	I, [+tr 3] [+Vn 4]	'be angry'
<u>kana</u>	II, [-imp], [+tr 4], [+Vn 8]	'be heavy'
<u>kanay</u>	II, [+tr 4] [+Vn 8]	'utter a cry, as a horse'
<u>kani</u>	I, [-imp], [+tr 3], [+Vn 7]	'ripen'
<u>kaa</u>	II, [+caus 2] [+Vn 1] [+Vn 8]	'protect'

<u>kaan</u>	I,	[+caus 2], [+Vn 1]	'see, meet'
(kan + +tns ) +pst			
<u>kaat</u>	I,	[+caus 2], [+Vn 9]	'show'
<u>kaatali</u>	II,	(Vn.: kaatal)	'love'
<u>kaant</u>	I, [-imp],	[+tr 3], [+Vn 1]	'burn'
<u>kaay</u>	I, [+tr 2],	[+caus 1], [+Vn 3]	'dry'
<u>kaali</u>	II, [-imp],	[+Vn 8]	'dawn'
<u>kaav</u>	I,	[+caus 2], [+Vn 4]	'carry'
<u>kaar</u>	I, [-imp]	[+tr 3], [+Vn 1]	'taste sour'
<u>ki</u>	I, [+tr 3]	(Vn.: ki	'reach, go
			closer'
<u>ki</u>	II, [+tr 2],	[+caus 1], [+Vn 8]	'lie down'
<u>ki</u>	II, [-imp],	[+tr 4], [+Vn 8]	'become avail-
			lable'
<u>ki</u>	II, [-imp],	[+tr 4], [+Vn 8]	'tremble'
<u>ki</u>	II, [-imp],	[+tr 4], [+Vn 8]	'make jingling
			sound'
<u>ki</u>	I,	[+caus 2], [+Vn 1]	'dig'
<u>ki</u>	I, [+tr 3]	[+Vn 1]	'hop'
<u>kilu</u>	I, [+tr 1],	[+caus 1], [+Vn 1]	'make rattling
			noise'
<u>ki</u>	I,	[+caus 2], [+Vn 1]	'pinch'
<u>ki</u>	I, [+tr 3]	[+Vn 1]	'grow old'
<u>ki</u>	I, [+tr 1],	[+caus 1], [+Vn 1]	'rise, ready
			to go'

<u>kiḷay</u>	I,	[+caus 2], [+Vn 1]	'sift'
<u>kiḷaR</u>	I,	[+caus 2], [+Vn 1]	'stir'
<u>kiḷi</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'tear'
<u>kiḷukiḷu</u>	II,	[-imp], [+tr 4], [+Vn 8]	'have ticklish feeling'
<u>kiRuk</u>	I,	[+tr 3], [+Vn 5]	'feel giddy'
<u>kiRukk</u>	I,	[+caus 2], [+Vn 1]	'scribble'
<u>kiRukiRu</u>	II,	[-imp], [+tr 4], [+Vn 8]	'have faintish feeling'
<u>kiiR</u>	I,	[+caus 2], [+Vn 1]	'draw'
<u>kucukucu</u>	II,	[-imp], [+caus 2], [+Vn 8]	'whisper'
<u>kuṭṭ</u>	I,	[+caus 2], [+Vn]	'cuff on head'
<u>kuṭaNk</u>	I,	[+tr 3], [+Vn 1]	'squat'
<u>kuṭoy</u>	I,	[+caus 2], [+Vn 1]	'search'
<u>kuṭi</u>	II,	[+caus 2], [+Vn]	'drink'
<u>kuṭu</u>	II,	[+caus 2], (Vn.: kuṭukkumati)	'give'
<u>kuṭukk</u>	I,	[+caus 2], [+Vn 1]	'make it minute'
<u>kutt</u>	I,	[+caus 2], [+Vn 4]	'punch'
<u>kutaNp</u>	I,	[+tr 1], [+caus 1], [+Vn 1]	'be messy'
<u>kutaR</u>	I,	[+caus 2], [+Vn 1]	'bite and detach with the teeth'
<u>kuti</u>	II,	[+tr 4], [+Vn 8]	'jump'
<u>kuNt</u>	I,	[+tr 3], [+Vn 4]	'sit'
<u>kum</u>	I,	[+caus 2], [+Vn 4]	'knead'
<u>kumaṭṭ</u>	I,	[-imp], [+tr 3], [+Vn 1]	'have vomitish feeling'

<u>kuNpiŋ</u>	I,	[+caus 2], [+Vn 1]	'worship'
<u>kurukuru</u>	II,	[-imp], [+tr 4], [+Vn 8]	'feel irritation in skin'
<u>kulay</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'untie'
	II,	[+tr 4] [+Vn 8]	'bark'
<u>kuluNk</u>	I,	[+tr 1], [+caus 1], [+Vn 1]	'shake'
<u>kuvi</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'heap'
<u>kuŋaNp</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 12]	'disorganize'
<u>kuŋay</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'mix'
<u>kuŋaR</u>	I,	[+tr 3], [+Vn 1]	'scream'
<u>kuŋi</u>	II,	[+tr 4], [+Vn 8]	'bathe'
<u>kuŋir</u>	I,	[-imp] [+Vn]	'feel cold'
<u>kuRaNŋ</u>	I,	[-imp], [+tr 3], [+Vn 1]	'cramp'
<u>kuRay</u>	I,	[+tr 5], [+caus 2], [+Vn]	'decrease, shorten'
<u>kuRi</u>	II,	[+caus 2], [+Vn 8]	'note'
<u>kuRuk</u>	I,	[+tr 1], [+caus 1], [+Vn 5]	'shorten'
<u>kuni</u>	I,	[+tr 3], [+Vn 1]	'bend'
<u>kuuc</u>	I,	[-imp], [+tr 3], [+Vn 12]	'have ticklish feeling'
<u>kuuŋ</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 2] [+Vn 12]	'increase, join together'
<u>kuuppiŋ</u>	I,	[+caus 2], [+Vn 1]	'call'
<u>kuuNp</u>	I,	[-imp], [+tr 3], [+Vn 1]	'shrink'
<u>kuur</u>	II,	[-imp], [+tr 4],	'give a taste of (mostly salt)'

<u>kuuv</u>	I,	[+tr 3],	[+Vn 1]	'coo'
<u>kuuR</u>	I,	[+caus 2],	[+Vn 1]	'auction'
<u>kuun</u>	I,	[+tr 3]p	[+Vn 1]	'hunch'
<u>keNc</u>	I,	[+caus 2],	[+Vn 1]	'beg'
<u>keɭu</u>	I,	[+tr 5], [+caus 2],	[+Vn 4]	'spoil'
(keɭ + +tns ) +pst +Vn				
<u>keNp</u>	I,	[+tr 3]	[+Vn 1]	'be angry'
<u>keɭi</u>	I,	[+tr 5], [+caus 2],	[+Vn 1]	'slide'
<u>keer</u>	I,	[-imp], [+tr 3],	[+Vn 1]	'throw into convulsion due to crying for a long time'
<u>keeɭ</u>	II,	[	[+caus 2], (Vn.: keeɭvi)	'ask, hear'
<u>kokkari</u>	II,	[+tr 4],	[+Vn 8]	'crow'
<u>koNc</u>	I,	[+caus 2],	[+Vn 1]	'kiss'
<u>koɭɭ</u>	I,	[+caus 2],	[+Vn 1]	'throw out'
<u>koɭuk</u>	I,	[+tr 3],	[+Vn 1]	'tremble due to cold'
<u>koNɭaaɭ</u>	I,	[+caus 2],	[+Vn 12]	'celebrate'
<u>kott</u>	I,	[+caus 2],	[+Vn 1]	'chop, dig, peck'
<u>koti</u>	II,	[-imp], [+tr 4],	[+Vn] [+Vn 8]	'boil'
<u>kotupp</u>	I,	[+caus 2]	[+Vn 1]	'take mouth- ful'



<u>koNt</u>	I, [-imp], [+tr 3], [+Vn 1] 'peck'
<u>koppiḷi</u>	II, [+caus 2], [+Vn 8] 'gargle'
<u>koy</u>	I, [+caus 2], (Vn.: koyyakam) 'pleat'
<u>kol</u>	I, [+caus 2], (Vn.: kolay) 'kill'
<u>koḷakoḷa</u>	II, [-imp], [+tr 4], [+Vn 8] 'be watery'
<u>koḷu</u>	II, [+tr 4], [+Vn 8] 'become fat'
<u>koḷuv</u>	I, [+tr 6], [+caus 2], [+Vn 1] 'entangle'
<u>kon</u>	I, [+tr 3] (Vn.: konnaḻ) 'stammer'
<u>koonḷ</u>	I, [+tr 3] [+Vn 1] 'become crooked'
<u>koot</u>	I, [+caus 2], [+Vn 4] 'scoop'
<u>koor</u>	II, [+caus 2], [+Vn 9] 'string'
<u>kool</u>	I, [+caus 2], [+Vn 1] 'haul up'
<u>koovi</u>	II, [+caus 2], (Vn.: koovam) 'become angry'
<u>caki</u>	II, [+caus 2], [+Vn 8] 'bear'
<u>caḷay</u>	I, [+caus 2], [+Vn 1] 'patch up'
<u>caNti</u>	II, [+caus 2], [+Vn 8] 'meet'
<u>capp</u>	I, [+caus 2], [+Vn 1] 'munch'
<u>camay</u>	II, [+caus 2], [+Vn 1] 'cook'
<u>camaaḷi</u>	II, [+caus 2], [+Vn 8] 'manage'
<u>camucayi</u>	II, [+caus 2], (Vn.: camucayam) 'suspect'
<u>caNpaari</u>	II, [+caus 2], [+Vn 8] 'earn, save'
<u>cammati</u>	II, [+tr 4], (Vn.: cammatam) 'agree'
<u>caracara</u>	II, [-imp], [+tr 4], [+Vn 8] '
<u>carī</u>	I, [+tr 5], [+caus 2], [+Vn 1] 'slide' [+Vn 7]
<u>caruv</u>	I, [+tr 3], [+Vn 1] 'quarrel'

<u>cali</u>	II, [-imp], [+tr 4], [+Vn 8]	'bore'
<u>cava]</u>	I, [-imp], [+tr 3], [+Vn 1]	'become loose'
<u>cavu</u>	II, [-imp], [+tr 4], [+Vn 8]	'get tired'
<u>ca]app</u>	I, [+caus 2], [+Vn 1]	'jabber'
<u>ca]ay</u>	II, [+tr 4], [+Vn 8]	'give up'
<u>ca]i</u>	I, [+tr 5], [+caus 2], [+Vn 1]	'become out of shape'
<u>caRuk</u>	I, [+Vn 1]	'slip out'
<u>caRukk</u>	I, [+tr 3], [+Vn 1]	'slip'
<u>caa</u>	I, [+Vn 4]	'die'
(ce + tt ) +tns +pst		
<u>caa]t</u>	I, [+caus 2], [+Vn 4]	'blame'
<u>caa]</u>	I, [+caus 2], [+Vn 1]	'kick'
<u>caatt</u>	I, [+caus 2], [+Vn 1]	'shut'
<u>caati</u>	II, [+caus 2], [+Vn 8]	'achieve'
<u>caappi]</u>	I, [+caus 2], (Vn.: caappaa]u)	'eat'
<u>caaNp</u>	I, [+caus 2], (caaNpala]i)	'give continu- ous beating'
<u>caay</u>	I, [+tr 5], [+caus 2], [+Vn 4]	'slant'
<u>caar</u>	I, [+tr 3], [+Vn 1]	'join'
<u>cikk</u>	I, [+tr 3], [+Vn 1]	'entangle'
<u>ciNkaari</u>	II, [+caus 2], [+Vn 8]	'decorate, apply make-up'
<u>ciquNk</u>	I, [+tr 3], [+Vn 1]	'sob'
<u>citti</u>	II, [-imp], [+tr 4], [+Vn]	'succeed'

<u>cittiri</u>	II,	[+caus 2], [+Vn 8]	'cook up stories'
<u>cittaari</u>	II,	[+caus 2], [+Vn 8]	'Issu summons'
<u>citaNp</u>	I,	[+tr 3], [+Vn 1]	'be muddy'
<u>citay</u>	I,	[+tr 5], [+caus 2], [+Vn 4]	'destroy'
<u>citaR</u>	I,	[-imp], [+tr 3], [+Vn 1]	'scatter'
<u>ciNt</u>	I,	[+tr 6], [+caus 2], [+Vn 1]	'spill'
<u>ciNti</u>	II,	[+caus 2], [+Vn 8]	'think'
<u>cimiṭṭ</u>	I,	[+caus 2], [+Vn 1]	'wink'
<u>ciray</u>	II,	[+caus 2], [+Vn 8]	'shave, cut hair'
<u>ciraav</u>	I,	[+caus 2], [+Vn 1]	'sharpen up'
<u>ciri</u>	II, [+tr 4],	[+Vn 8]	'laugh'
<u>cilavaḷi</u>	II,	[+caus 2], [+Vn 8]	'spend'
<u>cilaav</u>	I,	[+caus 2], [+Vn 1]	'give a short wash'
<u>cilir</u>	II, [-imp], [+tr 4],	[+Vn 8]	'feel cold'
<u>cilucilu</u>	II, [-imp], [+tr 4],	[+Vn 8]	'blow a cool breeze'
<u>civa</u>	II, [+tr 4]	[+Vn 8]	'become red'
<u>civaR</u>	I, [-imp], [+tr 3],	[+Vn 1]	'accumulate'
<u>ciRo</u>	II, [-imp], [+tr 4],	[+Vn 8]	'become famous'
<u>ciRu</u>	II, [-imp], [+tr 4],	(Vn.: ciRuvan, ciRumi, ciRucu)	'become short'
<u>cina</u>	II, [-imp], [+tr 4],	[+Vn 11]	'get angry'
<u>ciiv</u>	I,	[+caus 2], [+Vn 1]	'comb, slash'
<u>ciivi</u>	II,	(Vn.: ciiviyam)	'live'

<u>ciir</u>	I, [+tr 3],	[+Vn 1]	'huff with anger'
<u>cukk</u>	I,	[+Vn 1]	'have sexual intercourse'
<u>cuki</u>	II, [-imp], (Vn.: cukam)		'enjoy'
<u>cutt</u>	I,	[+Vn 1]	'point at'
<u>cut</u>	I,	[+caus 2], [+Vn 4]	'shoot'
<u>cuNt</u>	I,	[+caus 2], [+Vn 1]	'roast'
<u>cuŋoy</u>	II, [-imp], [+tr 4],	[+Vn 8]	'feel irritation in skin'
<u>cuŋaNk</u>	I, [+tr 1], [+caus 1],	[+Vn 12]	'get late'
<u>cutt</u>	I,	[+caus 2], [+Vn 4]	'roll'
<u>cuma</u>	II, [+caus 2], (Vn.: cu[+Vn 14]		'carry'
<u>cura</u>	II, [-imp], [+tr 4],	[+Vn 8]	'spring'
<u>curuNk</u>	I, [+tr 1], [+caus 1],	[+Vn 1] [+Vn 12]	'shrink'
<u>cuvay</u>	I, [+Tr 6], [+caus 2],	[+Vn]	'taste'
<u>cu\or</u>	I, [+tr 2], [+caus 1],	[+Vn 9]	'whirl'
(cu\or + nt +tns +pst)			
<u>cu\i</u>	II, [+tr 6], [+caus 2],	[+Vn 8]	'draw crooked lines'
<u>cu\ukk</u>	I, [-imp], [+tr 3],	[+Vn 4]	'sprain'
<u>cuRaNt</u>	I,	[+caus 2], [+Vn 1]	'scrape'
<u>cuRu\</u>	I, [+tr 2], [+caus 1],	[+Vn 6]	'roll'
<u>cuupp</u>	I,	[+caus 2], [+Vn 1] [+Vn 10]	'suck'

<u>cuuNp</u>	I, [-imp], [+tr 3], [+Vn 1] 'wither, dry'
<u>cuu]</u>	I, [-imp], [+tr 3], [+Vn 1] 'surround'
<u>cemi</u>	II, [-imp], [+tr 4], (Vn.: cemipaa[u] 'digest'
<u>cey</u>	I, [+caus 2], (Vn.: ceykay) [+Vn 1] 'do'
<u>ceruk</u>	I, [+tr 1], [+caus 1], [+Vn 5] 'insert'
<u>cerum</u>	I, [+tr 3], [+Vn 1] 'cough in order to clear the throat'
<u>ceekori</u>	II, [+caus 2], [+Vn 8] 'collect, save'
<u>ceemi</u>	II, [+caus 2], [+Vn 8] 'save'
<u>ceer</u>	I, [+tr 5], [+caus 2], [+Vn 1] [+Vn 9] 'join'
<u>cokk</u>	I, [+tr 3], [+Vn 1] 'absorb'
<u>co[t]</u>	I, [+tr 6], [+caus 2], [+Vn 4] 'drip'
<u>co[t]ukk</u>	I, [+Vn 4] 'inflict a gentle blow'
<u>coracora</u>	II, [-imp], [+tr 4], [+Vn 8] 'give a feeling of roughness when touching something'
<u>cori</u>	I, [+caus 2], [+Vn 1] 'pour'
<u>col</u>	I, [+caus 2], [+Vn 4] 'tell'
<u>coRi</u>	I, [+tr 6], [+caus 2], [+Vn] 'scratch'
<u>coo[t]i</u>	II, [+caus 2], [+Vn 8] 'decorate'
<u>cooti</u>	II, [+caus 2], [+Vn 8] 'examine'

<u>coor</u>	I, [+tr 3],	[+Vn 4]	'get tired'
<u>takataka</u>	II, [-imp], [+tr 4],	[+Vn 8]	'emit light from jewels etc.'
<u>takar</u>	I, [+tr 5], [+caus 2],	[+Vn 1]	'destroy'
<u>taki</u>	II, [-imp] [+tr 4],	[+Vn 8]	'be extremely warm'
<u>toNk</u>	I, [+tr 3],	[+Vn 1]	'stay'
<u>taŋi</u>	I,	[+caus 2], [+Vn 4]	'knock'
<u>taŋataŋa</u>	II, [-imp], [+tr 4],	[+Vn 8]	'be in a hurry'
<u>taŋaNk</u>	I, [+tr 1], [+caus 1],	[+Vn 1]	'obstruct'
<u>taŋav</u>	I,	[+caus 2], [+Vn 1]	'touch gently'
<u>taŋi</u>	I, [-imp], [+tr 4],	[+Vn 8]	'swell'
<u>taŋu</u>	I,	[+caus 2], [+Vn 8]	'stop'
<u>taŋumaar</u>	I, [+tr 3],	[+Vn 1]	'confuse'
<u>taŋi</u>	I, [+tr 5], [+caus 2],	[+Vn 7]	'reduce'
<u>taNŋi</u>	II,	[+caus 2], [+Vn 8]	'punish'
<u>taNŋ</u>	I,	[+caus 2], [+Vn 1]	'collect'
<u>tattaŋi</u>	II, [+tr 4],	[+Vn 8]	'struggle'
<u>tapp</u>	I, [+tr 3],	[+Vn 1]	'escape, apply'
<u>toy</u>	II,	[+caus 2], [+Vn 1]	'sew, knit'
<u>toyaNk</u>	I, [+tr 3],	[+Vn 12]	'hesitate'
<u>tar</u>	I, (imp.: taa), [+caus 2],	(Vn.: tarumati)	'give'
<u>tari</u>	II, [+tr 4],	[+Vn 8]	'have a brief stay'

<u>tarukk</u>	I, [+tr 3],	[+Vn 1]	'fuss'
<u>tavaḷ</u>	I, [+tr 3],	[+Vn 1]	'crawl'
<u>tavaR</u>	I, [+tr 3],	[+Vn 4]	'fail'
<u>tavi</u>	II, [+tr 4],	[+Vn 8]	'be anxious'
<u>taḷ</u>	I,	[+caus 2], [+Vn 4]	'push'
<u>taḷataḷa</u>	II, [-imp], [+tr 4],	[+Vn 8]	'become loose'
<u>taḷaNp</u>	I, [-imp], [+tr 3],	[+Vn 1]	'overflow'
<u>taḷay</u>	II, [-imp], [+tr 4],	[+Vn 8]	'grow'
<u>taḷar</u>	I, [+tr 2], [+caus 1],	[+Vn 1]	'become fatigued'
<u>taḷḷaaṭ</u>	I, [+tr 3],	[+Vn 12]	'be unstead'
<u>taḷir</u>	II, [-imp], [+tr 4],	[+Vn]	'grow, as a young plant'
<u>taRi</u>	II, [+tr 5], [+caus 2],	[+Vn 8]	'chop'
<u>taRukkaṇi</u>	II, [-imp], [+tr 4],	[+Vn 8]	'become hard'
<u>tanak</u>	I, [+tr 3],	[+Vn 1]	'quarrel'
<u>tani</u>	II, [-imp], [+tr 4],	[+Vn 14]	'be left alone'
<u>taakkaaṭṭ</u>	I,	[+caus 2], [+Vn 1]	'take care of'
<u>taaNk</u>	I,	[+caus 2], [+Vn 9]	'bear'
<u>taaNṭ</u>	I,	[+caus 2], [+Vn 1]	'cross, jump'
<u>taapari</u>	II,	[+caus 2], [+Vn 8]	'look after'
<u>taamati</u>	II, [+tr 6], [+caus 2],	[+Vn 8]	'delay'
<u>taalaṭṭ</u>	I,	[+caus 2], [+Vn 4]	'sing lullaby'
<u>taav</u>	I, [+tr 3],	[+Vn 1]	'leap'
<u>taaḷ</u>	I, [+tr 5], [+caus 2],	[+Vn 13]	'drown'
<u>taaḷi</u>	II,	[+caus 2], [+Vn 8]	'season'
<u>tiṭukkiṭ</u>	I, [+tr 3],	[+Vn 1]	'get frightened'



<u>tikay</u>	II, [-imp], [+tr 4], [+Vn 8] 'be surprised'
<u>tiṭṭ</u>	I, [+caus 2], [+Vn 4] 'scold'
<u>tiṇaR</u>	I, [+tr 3], [+Vn 1] 'struggle'
<u>tiṇi</u>	I, [+tr 5], [+caus 2], [+Vn 8] 'stuff'
<u>tiNṭaṭ</u>	I, [+tr 3], [+Vn 12] 'struggle'
<u>titti</u>	II, [-imp], [+tr 4], [+Vn 8] 'be excessively sweet'
<u>timiR</u>	I, [+tr 3], [+Vn 1] 'struggle to get free'
<u>tiyaNk</u>	I, [-imp], [+tr 1], [+caus 1], [+Vn 12] 'make dizzy'
<u>tiraṭṭ</u>	I, [+caus 2], [+Vn 4] 'chase'
<u>tiray</u>	I, [-imp], [+tr 3], [+Vn 1] 'become soggy'
<u>tiraḷ</u>	I, [+tr 2], [+caus 1], [+Vn 6] 'join together'
<u>tiri</u>	I, [+tr 3], [+Vn 1] 'wander' [+tr 5], [+caus 2], [+Vn 8] 'knit, as a rope'
<u>tiruk</u>	I, [+caus 2], [+Vn 1] 'squeeze'
<u>tiruṭ</u>	I, [+caus 2], [+Vn 5] 'steal'
<u>tiruNt</u>	I, [+tr 1], [+caus 1], [+Vn 12] 'improve'
<u>tiruNp</u>	I, [+tr 1], [+caus 1], [+Vn 1] 'turn' [+Vn 12]
<u>tiruv</u>	I, [+caus 2], [+Vn 1] 'scrape'
<u>tiRa</u>	II, [+tr 6], [+caus 2], [+Vn 8] 'open'
<u>tin</u>	I, [+caus 2], (Vn.: tiin) 'eat'
<u>tii</u>	I, [+tr 5], [+caus 2], [+Vn 1] 'burn, roast'

<u>tiit̪t̪</u>	I,	[+caus 2], [+Vn 1]	'sharpen up, beat'
<u>tiitt</u>	I,	[+caus 2], [+Vn 1]	'feed'
<u>tiir</u>	I, [+tr 5],	[+caus 2], [+Vn 9]	'settle'
<u>tiir̪moani</u>	II,	[+caus 2], [+Vn 8]	'decide'
<u>tu̪aŋk</u>	I, [+tr 1],	[+caus 1], [+Vn 12]	'begin, start, conduct'
<u>tu̪ay</u>	II,	[+caus 2], [+Vn 8]	'wipe'
<u>tu̪i</u>	II, [+tr 4],	[+Vn 8]	'struggle due to pain'
<u>tu̪i</u>	I, [+tr 3],	[+Vn 3] [+Vn 7]	'attempt'
<u>tuN̪i</u>	II,	[+caus 2], [+Vn 8]	'cut off'
<u>tupp</u>	I,	[+caus 2], [+Vn 1]	'spit'
<u>tum</u>	I, [+tr 3],	[+Vn 1]	'sneeze'
<u>tumi</u>	II, [-imp],	[+Vn]	'drizzle'
<u>turuturu</u>	II, [-imp], [+tr 4],	[+Vn 8]	'be agile'
<u>tulay</u>	I, [+tr 5],	[+caus 2], [+Vn 8]	'loose'
<u>tuva̪t̪</u>	I,	[+caus 2], [+Vn 1]	'dry'
<u>tuvay</u>	I, [+tr 5],	[+caus 2], [+Vn 1]	'mash'
<u>tu̪</u>	I, [+tr 3],	[+Vn 1]	'jump, hop'
<u>tu̪ay</u>	II,	[+caus 2], [+Vn]	'make a hole'
<u>tu̪aav</u>	I,	[+caus 2], [+Vn 1]	'mix, search'
<u>tu̪ir</u>	II, [-imp], [+tr 4],	[+Vn]	'to have many tender shoots'
<u>tuuNk</u>	I, [+tr 1],	[+caus 1], [+Vn 5]	'hang, lift, carry'

<u>tuutt</u>	I,	[+caus 2], [+Vn 1]	'abuse'
<u>tuur</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'cover'
<u>tuuv</u>	I,	[+caus 2], [+Vn 1]	'sprinkle'
<u>tuuR</u>	I,	[-imp], [+Vn 3]	'rain'
<u>teki</u> <u>l</u>	I,	[-imp], [+Vn 1]	'cause a dislike for food due to its abundance'
<u>teN</u> <u>l</u>	I,	[+caus 2], [+Vn 1]	'lift'
<u>teN</u> <u>l</u> <u>i</u>	II,	[+caus 2], [+Vn 8]	'persuade, force, try'
<u>tett</u>	I,	[+tr 3], [+Vn 4]	'hop, jump'
<u>teri</u>	I,	[+caus 2], [+Vn 7]	'know, select'
<u>te</u> <u>l</u>	I,	[+caus 2], [+Vn 4]	'sift'
<u>te</u> <u>l</u> <u>i</u>	I,	[+tr 5], [+caus 2], [+Vn 1] [+Vn 7] [+Vn 8] [+Vn 9]	'become clear, sprinkle'
<u>teRi</u>	II,	[+tr 6], [+caus 2], [+Vn 1] [+Vn 8]	'spill'
<u>teeNk</u>	I,	[-imp], [+tr 3], [+Vn 1]	'stagnate'
<u>tee</u> <u>l</u>	I,	[+caus 2], [+Vn 1]	'look for'
<u>teett</u>	I,	[+caus 2], [+Vn 1]	'console'
<u>teeNp</u>	I,	[+tr 3], [+Vn 1]	'sob'
<u>teey</u>	I,	[+tr 5], [+caus 2], [+Vn 1] [+Vn 3] [+Vn 7] [+Vn 8] [+Vn 9]	'rub, decline'
<u>teeR</u>	I,	[+tr 3], [+Vn 1]	'improve! recover'

<u>toNk</u>	I, [+tr 3],	[+Vn 1]	'hang'
<u>toɭ</u>	I,	[+caus 2], [+Vn 9]	'touch'
<u>toɭar</u>	I, [+caus 2], (Vn.: toɭarpu)		'follow'
<u>toɭu</u>	II,	[+caus 2], [+Vn 8]	'connect, join'
<u>tonqatorq</u>	II, [-imp], [+tr 4],	[+Vn 8]	'blab and make complaints often'
<u>tott</u>	I, [+tr 3],	[+Vn 1]	'hop or hang on to'
<u>toy</u>	I, [+tr 5], [+caus 2],	[+Vn 1]	'become loose'
<u>toɭatoɭa</u>	II, [-imp], [+tr 4],	[+Vn 8]	'be not firm'
<u>toonɭ</u>	I,	[+caus 2], [+Vn 1]	'dig (a hole)'
<u>tooy</u>	I, [+tr 5], [+caus 2],	[+Vn 1] [+Vn 3] [+Vn 8]	'bathe, wash'
<u>tool</u>	II,	[+caus 2], (Vn.: toolvi)	'loose'
(tool + tt ) (imp. toor) +tns +pst			
<u>pakay</u>	II,	[+caus 2], [+Vn]	'become enemy'
<u>pakir</u>	I,	[+caus 2], [+Vn 1]	'divide, serve'
<u>paku</u>	II,	[+caus 2], [+Vn 3] [+Vn 8]	'divide'
<u>pacapp</u>	I,	[+Vn 1]	'try to make one to believe false acts'
<u>paci</u>	II, [-imp],	[+Vn]	'be hungry'
<u>pat</u>	I, [+tr 3],	[+Vn 4]	'suffer, experience'

<u>paṭapaṭa</u>	II, [-imp], [+tr 4], [+Vn 8] 'throb'
<u>paṭay</u>	II, [+caus 2], [+Vn 1] 'serve meals'
<u>paṭar</u>	I, [-imp] [+tr 3], [+Vn 1] 'creep'
<u>paṭi</u>	I, [+tr 5], [+caus 2], [+Vn 7] 'settle, study' [+Vn 8]
<u>paṭu</u>	II, [+tr 4], (Vn.: paṭukkay) 'sleep'
<u>paṇ</u>	I, [+caus 2], [+Vn 1] 'do, make'
<u>paṇi</u>	I, [+tr 5], [+caus 2], [+Vn 7] 'low down'
<u>patay</u>	II, [+tr 4], [+Vn 8] 'shock'
<u>pataR</u>	I, [+tr 3], [+Vn 1] 'be in agitative and anxious mood'
<u>pati</u>	I, [+tr 5], [+caus 2], [+Vn 1] 'low down, [+Vn 7] [+Vn 8] imprint'
<u>patuNk</u>	I, [+tr 1], [+caus 1], [+Vn 1] 'hide' [+Vn 2]
<u>patt</u>	I, [+tr 6], [+caus 2], [+Vn 1] 'light, draw, burn'
<u>pam</u>	I, aa verbal form used instead of <u>paṇ</u> when scolding or in disgust.
<u>payappiṭ</u>	I, [+tr 3], (Vn.: payam) 'be afraid'
<u>paratt</u>	I, [+caus 2], [+Vn 1] 'spread, as seeds etc.'
<u>paraNp</u>	I, [+tr 1], [+caus 1], [+Vn 1] 'spread, as news'
<u>pari</u>	I, [-imp], [+Vn 7] 'show concern'
<u>parukk</u>	I, [+caus 2], [+Vn 1] 'cause to drink'
<u>pali</u>	II, [-imp] [+tr 4], [+Vn 8] 'become true'
<u>paṭak</u>	I, (caus.: paṭakk; paṭakkuvi) [+Vn 12] 'learn, train'

<u>paḷapaḷa</u>	II, [-imp],	[+tr 4],	[+Vn 8]	'shine'
<u>paḷi</u>	II,	[+caus 2],	[+Vn 8]	'humiliate'
<u>paḷu</u>	II, [-imp],	[+tr 4],	[+Vn 8]	'ripen'
<u>paRo</u>	II, [+tr 4],		[+Vn 9]	'fly'
<u>paRapaRo</u>	II, [-imp],	[+tr 4],	[+Vn 8]	'be in haste, make creaky noise'
<u>paRay</u>	I, [+tr 3],		[+Vn 1]	'speak'
<u>paRi</u>	I, [+tr 5],	[+caus 2],	[+Vn 8]	'unload, snatch'
<u>paatḷ</u>	I,	[+caus 2],	[+Vn 5]	'sing'
<u>paati</u>	II,	[+caus 2],	[+Vn 8]	'affect'
<u>paay</u>	I, [+tr 2],	[+caus 1],	[+Vn 1] [+Vn 3] [+tr 3],	'flow, jump'
<u>paar</u>	II,	[+caus 2],	[+Vn 9]	'see'
<u>paaraatḷ</u>	I,	[+caus 2],	[+Vn 4]	'congratulate, praise'
<u>paari</u>	II, [-imp],	[+tr 4],	(Vn.: paaram)	'be heavy'
<u>paavi</u>	II,	[+caus 2],	[+Vn 8]	'use'
<u>paar</u>	I, [-imp],	[+tr 3],	[+Vn 1]	'be uprooted'
<u>picak</u>	I, [+tr 3],		[+Vn 4]	'go wrong'
<u>picaNk</u>	I, [+tr 1],	[+caus 1],	[+Vn 1]	'crush'
<u>picay</u>	I,	[+caus 2],	[+Vn 1]	'mash'
<u>picaNk</u>	I, [+tr 1],	[+caus 1],	[+Vn 1]	'squeeze'
<u>picupicu</u>	II, [-imp],	[+tr 4],	[+Vn 8]	'be sticky'
<u>piḷay</u>	II,	[+caus 2],	[+Vn 1]	'sift'
<u>piḷi</u>	II,	[+caus 2],	[+Vn 8]	'catch'

<u>pi<u>u</u>Nk</u>	I,	[+caus 2], [+Vn 1]	'uproot'
<u>pi<u>q</u>aNk</u>	I, [+tr 3],	[+Vn 12]	'disagree'
<u>pi<u>q</u>ay</u>	I, [+tr 5], [+caus 2],	[+Vn 1]	'crowd, bind'
<u>pi<u>t</u>aNk</u>	I, [+tr 1], [+caus 1],	[+Vn 1] [+Vn 2]	'buldge, squeeze'
<u>pi<u>n</u>t</u>	I, [+tr 3],	[+Vn 1]	'get delayed'
<u>pi<u>y</u></u>	I, [+tr 5], [+caus 2],	[+Vn 8]	'tear'
<u>pi<u>r</u>a<u>l</u></u>	I, [+tr 2], [+caus 1],	[+Vn 1]	'stain, fall'
<u>pi<u>r</u>i</u>	I, [+tr 5], [+caus 2],	[+Vn 1] [+Vn 3] [+Vn 7] [+Vn 8]	'separate, divide'
<u>pi<u>l</u>a</u>	II, [-imp], [+tr 4],	[+Vn 8]	'be increased'
<u>pi<u>l</u>a</u>	II, [+tr 6], [+caus 2],	[+Vn 9]	'chop'
<u>pi<u>l</u>aNk</u>	I,	[+caus 2], [+Vn 12]	'use'
<u>pi<u>l</u>ay</u>	II,	[+caus 2], [+Vn] [+Vn 8]	'go wrong, earn'
<u>pi<u>l</u>i</u>	I,	[+caus 2], [+Vn 1]	'crush, squeeze'
<u>pi<u>R</u>a</u>	II, [+tr 4],	[+Vn 8]	'be born'
<u>pi<u>n</u></u>	I,	[+caus 2], [+Vn 1]	'knit'
<u>pi<u>n</u>ay</u>	I,	[+caus 2], [+Vn 1]	'mash'
<u>pi<u>n</u>ni<u>t</u></u>	I, [+tr 3],	[+Vn 1]	'hesitate'
<u>pi<u>i</u>cc</u>	I, [+tr 3],	[+Vn 1]	'pass watery motion'
<u>pi<u>i</u>tt</u>	I, [+tr 3],	[+Vn 1]	'boast'
<u>pi<u>i</u>R</u>	I, [-imp],	[+Vn 1]	'flow'
<u>pukay</u>	I, [+tr 5], [+caus 2],	[+Vn]	'smoke'
<u>pucatt</u>	I, [+tr 3],	[+Vn 1]	'blab'



<u>putay</u>	I, [+tr 5], [+caus 2], [+Vn 1] [+Vn 8]	'bury'
<u>putuppi</u>	II, [+Vn 8]	'cause to become new'
<u>puri</u>	I, [-imp], [+tr 3],	'understand'
<u>puloNp</u>	I, [+Vn 1]	'babble'
<u>puluNt</u>	I, [-imp], [+tr 3], [+Vn 1]	'get scorched'
<u>puḷi</u>	II, [-imp], [+tr 4], [+Vn 8]	'taste sour'
<u>puḷu</u>	II, [+tr 4], [+Vn 3] [+Vn]	'become worm eaten'
<u>puḷuk</u>	I, [+tr 3], [+Vn 4]	'boaster'
<u>puḷuNk</u>	I, [+tr 1], [+caus 1], [+Vn 1] [+Vn 2]	'boil, sweat'
<u>puRappaṭ</u>	I, [tr 3], [+Vn 1]	'start to go'
<u>puRi</u>	I, [tr 5], [+caus 2], [+Vn 1] [+Vn 7]	'divide'
<u>puRupuRu</u>	II, [+tr 4], [+Vn 8]	'complain'
<u>puu</u>	II, [-imp], [+Vn]	'flower'
<u>puuc</u>	I, [+caus 2], [+Vn 5]	'paint, smear'
<u>puuṭṭ</u>	I, [+caus 2], [+Vn 4]	'lock, shut'
<u>puur</u>	I, [+tr 2], [+caus 1], [+Vn 1]	'enter, insert'
<u>puuri</u>	I, [-imp], [+tr 4], [+Vn 8]	'be extremely happy'
<u>pey</u>	I, [+tr 3], [+Vn 1]	'rain, urinate'
<u>peru</u>	II, [+tr 4], [+Vn 13]	'become large'
<u>peruk</u>	I, [+tr 1], [+caus 1], [+Vn 12]	'increase'
<u>peR</u>	I, [+caus 2], [+Vn 1]	'give birth'

<u>peec</u>	I,	[+caus 2], [+Vn 5]	'scold, speak'
<u>peen</u>	I,	[+caus 2], [+Vn 1]	)'preserve'
<u>peetoli</u>	II, [+tr 4],	[+Vn 8]	'get frightened'
<u>peeti</u>	II, [+tr 4],	[+Vn]	'take purgative'
<u>peer</u>	I, [+tr 5], [+caus 2], [+Vn 1]		'uproot, chop'
<u>peel</u>	I, [+tr 3],	[+Vn 1]	'defecate'
<u>poNk</u>	I, [+tr 6], [+caus 2], [+Vn 1]		'overflow due to boiling, cook'
<u>poci</u>	I, [-imp], [+tr 3], [+Vn 1]		'ooze'
<u>pocuNk</u>	I, [+tr 1], [+caus 1], [+Vn 1]		'be burnt, as paper, cloth etc.'
<u>potukk</u>	I, [+tr 3],	[+Vn 1]	'take mouthful'
<u>pott</u>	I,	[+caus 2], [+Vn 4]	'cover'
<u>pom</u>	I, [-imp], [+tr 3], [+Vn 1]		'bloat'
<u>poy</u>	II, [-imp], [+tr 4], [+Vn]		'become false'
<u>pori</u>	I, [+tr 5], [+caus 2], [+Vn 1]		'fry'
<u>poruNt</u>	I, [+tr 1], [+caus 1], [+Vn 1]	[+Vn 2] [+Vn 12]	'coincide, join'
<u>poli</u>	I, [-imp], [+tr 3], [+Vn 7]		'become increased'
<u>poli</u>	I,	[+caus 2], [+Vn 1]	'make small holes on a slab of stone'
<u>poRi</u>	II, [+tr 6], [+caus 2], [+Vn]		'trap'
<u>poRu</u>	II,	[+caus 2], [+Vn 8] [+Vn 14]	'be patient, bear, excuse'
<u>poRukk</u>	I,	[+caus 2], [+Vn 10]	'pick'
<u>poo</u>	I, [+tr 3],	[+Vn 6]	'go'

<u>pooṭ</u>	I,	[+caus 2], [+Vn 1]	'drop'
<u>poor</u>	II,	[+caus 2], [+Vn 9]	'cover'
<u>makiṭi</u>	II, [-imp]	[+tr 4], [+Vn 8]	'sprain'
<u>makk</u>	I, [-imp],	[+Vn 1]	'decompose'
<u>maNk</u>	I, [-imp], [+tr 3],	[+Vn 1]	'decline, diminish'
<u>maci</u>	I, [+tr 5], [+caus 2],	[+Vn 1]	'crush, mash'
<u>macuk</u>	I, [+tr 3],	[+Vn 1]	'hang around'
<u>maṭaṆk</u>	I, [+tr 1], [+caus 1],	[+Vn 1]	'bend'
<u>maṭamaṭa</u>	II, [-imp], [+tr 4],	[+Vn 8]	'make noise'
<u>maṭi</u>	I, [+tr 5], [+caus 2],	[+Vn 8]	'fold'
<u>maṭṭiṭ</u>	I,	[+caus 2], [+Vn 1]	'assess'
<u>maṇa</u>	II, [+tr 6], [+caus 2],	[+Vn 11]	'stink, smell'
<u>maNṭ</u>	I, [-imp],	[+Vn 1]	'keep away'
<u>maNṭaṭ</u>	I,	[+caus 2], [+Vn 1] [+Vn 12]	'pray'
<u>mataaṭi</u>	II, [-imp], [+tr 4],	[+Vn 8]	'grow luxuri- ently'
<u>mati</u>	II,	[+caus 2], [+Vn 8]	'value, respect'
<u>maNti</u>	II, [-imp]	[+tr 4], [+Vn 8]	'cause indigestion'
<u>mayaNk</u>	I, [+tr 1], [+caus 2],	[+Vn 12]	'faint'
<u>mayiNt</u>	I, [+tr 3],	[+Vn 1]	'hesitate'
<u>maro</u>	II, [-imp], [+tr 4],	[+Vn 11]	'become hard'
<u>maruṭ</u>	I, [+tr 2], [+caus 1],	[+Vn 7] [+Vn 6]	'be attracted'
<u>malay</u>	II, [-imp], [+tr 4],	[+Vn 8]	'be surprised'
<u>mallaatt</u>	I,	[+caus 2], [+Vn 1]	'put upside down'
<u>moli</u>	I, [-imp], [+tr 3],	[+Vn 7]	'become cheap'

<u>ma[u]Nk</u>	I, [-imp], [+tr 3], [+Vn 1]	'become blunt'
<u>ma[u]pp</u>	I, [+caus 2], [+Vn 1] [+Vn 4]	'evade'
<u>maRa</u>	II, [+caus 2], (Vn.: maRati)	'forget'
<u>maRoy</u>	I, [+tr 5], [+caus 2], [+Vn 8]	'hide, conceal'
<u>maRi</u>	II, [+caus 2], [+Vn 8]	'stop, obstruct'
<u>maRu</u>	II, [+caus 2], [+Vn 8]	'deny, turn down'
<u>manni</u>	II, [+caus 2], [+Vn 8]	'pardon'
<u>maa[t]</u>	I, [+caus 2], [+Vn 1]	'connect, hook'
<u>maay</u>	I, [+tr 3], [+Vn 3]	'work hard'
<u>maa]</u>	I, [+tr 3], [+Vn 9]	'be at a work throughout'
<u>maoR</u>	I, [+tr 2], [+caus 1], [+Vn 3]	'change'
<u>miNc</u>	I, [-imp], [+tr 3], [+Vn 12]	'be in excess'
<u>mito</u>	II, [+tr 2], [+caus 1], [+Vn 8] [+Vn 9]	'float'
<u>mira]</u>	I, [+tr 2], [+caus 1], [+Vn 1]	'be scared'
<u>miri</u>	II, [+caus 2], [+Vn 8]	'tread'
<u>milaaNt</u>	I, [-imp], [+tr 3], [+Vn 1]	'be not attentive, blink'
<u>min</u>	I, [-imp], [+Vn 1]	'glitter, lighten'
<u>minakke]</u>	I, [+tr 2], [+caus 1], [+Vn 4]	'waste time'
<u>minuNk</u>	I, [-imp], [+tr 1], [+caus 1], [+Vn 1]	'shine'
<u>minuminu</u>	II, [-imp], [+tr 4], [+Vn 8]	'glitter'

<u>miił</u>	I, [+tr 5], [+caus 2], [+Vn 1]	'recover'
<u>miiR</u>	I, [+caus 2], [+Vn 1]	'disobey'
<u>mukk</u>	I, [+tr 3], [+Vn 1]	'strain'
<u>mukkułi</u>	II, [+tr 4], [+Vn 8]	'struggle in water'
<u>mułaNk</u>	I, [+tr 1], [+caus 1], [+Vn 1]	'confine narrowly, invest'
<u>mułay</u>	I, [+caus 2], [+Vn 1]	'create quarrel between two persons by carrying tales'
<u>mułi</u>	I, [+tr 5], [+caus 2], [+Vn 7] [+Vn 8]	'finish'
<u>mułukk</u>	I, [-imp], [+Vn 1]	'urge'
<u>mułł</u>	I, [+caus 2], [+Vn 4]	'collide'
<u>mułłuppał</u>	I, [+tr 3], [+Vn 4]	'become poor'
<u>mułumułu</u>	II, [+tr 4], [+Vn 8]	'murmur'
<u>muNł</u>	I, [+tr 3], [+Vn 1]	'pick up a quarrel'
<u>mutir</u>	I, [-imp], [+tr 3], [+Vn 7]	'mature'
<u>mutt</u>	I, [-imp], [+tr 3], [+Vn 1]	'ripen, mature'
<u>muNt</u>	I, [+caus 2], [+Vn 1]	'overtake, lead'
<u>mułaNk</u>	I, [+tr 1], [+caus 1], [+Vn 12]	'thunder, sound like a drum'
<u>mułay</u>	II, [-imp], [+tr 4], [+Vn]	'grow, as a plant'
<u>mułaac</u>	I, [+tr [+caus 2], [+Vn 1]	'beat'
<u>mułi</u>	II, [+caus 2], [+Vn 8]	'blink, open (eyes)'

<u>mu]uk</u>	I, [+tr 3],	[+Vn 5]	'bathe'
<u>mu]uc</u>	I, [+tr 3],	[+Vn 1]	'blink due to guilt or ignorance'
<u>muRaNt</u>	I, [+tr 3],	[+Vn 1]	'be obstinate'
<u>muRay</u>	II, [+tr 4],	[+Vn 8]	'give a stern look'
<u>muRi</u>	I, [+tr 5], [+caus 2],	[+Vn 1] [+Vn 7]	'crack, break'
<u>muRuk</u>	I, [+tr 1], [+caus 1],	[+Vn 5]	'wind, saturate'
<u>munak</u>	I, [+tr 3],	[+Vn 1]	'murmur due to illness'
<u>muni</u>	I,	[+caus 2], [+Vn 7]	'be angry'
<u>muu</u>	II, [-imp], [+tr 4],	[+Vn 8]	'grow old'
<u>muuc</u>	I,	[+Vn 1]	'breathe heavily'
<u>muu]</u>	I, [+tr 6], [+caus 2],	[+Vn 1]	'close, shut'
<u>muutoli</u>	II, [+tr 4],	[+Vn 8]	'complain'
<u>muu]</u>	I, [+tr 2], [+caus 1],	[+Vn 3]	'kindle'
<u>mett</u>	I, [-imp], [+tr 3],		'become too much'
<u>mey</u>	II, [-imp], [+tr 4],	[+Vn]	'become true'
<u>meli</u>	I, [+tr 3],	[+Vn 7]	'grow lean'
<u>me]uk</u>	I,	[+caus 2], [+Vn 1] [+Vn 5]	'coat with cowdung'
<u>meey</u>	I, [+tr 5], [+caus 2],	[+Vn 3]	'graze, roof the house'
<u>meev</u>	I,	[+caus 2], [+Vn 1]	'respect, obey'
<u>mott</u>	I,	[+caus 2], [+Vn 1]	'take mouthful'

<u>moy</u>	II, [-imp],	[+caus 2], [+Vn 8]	'enclose'
<u>moot</u>	I,	[+caus 2], [+Vn 1]	'oppose, collide'
<u>yuuki</u>	II, (Vn.: yuukam)		'deduce'
<u>yooci</u>	II, (Vn.: yoocanay)		'think'
<u>vaki</u>	I, [+tr 4],	[+Vn 8]	'hold a position'
<u>vacay</u>	I, [+tr 5], [+caus 2], [+Vn 7]		'bend, convince, induce'
<u>vacani</u>	II,	[+Vn 8]	'make stories'
<u>vacuuli</u>	II,	[+caus 2], [+Vn 8]	'collect, as tax etc.'
<u>vacciru</u>	II,	[+caus 2], [+Vn 8]	'possess'
<u>vaNci</u>	II,	[+caus 2], [+Vn 8]	'decieve'
<u>vaṭi</u>	I, [+tr 5], [+caus 2],	[+Vn 1] [+Vn 8]	'filter'
<u>vaṇaṅk</u>	I,	[+caus 2], [+Vn 1] [+Vn 12]	'worship'
<u>vataṅk</u>	I, [+tr 1], [+caus 1],	[+Vn 1]	'scorch, fry'
<u>vatay</u>	II,	[+caus 2], [+Vn 8]	'torture'
<u>vatt</u>	I, [+tr 3],	[+Vn 1]	'become dry by evaporation or by draining'
<u>vay</u>	II,	[+caus 2], [+Vn 8]	'keep'
<u>vayakkeṭ</u>	I, [-imp], [+tr 3],	[+Vn 4]	'pulled down'
<u>vayiri</u>	II, [-imp], [+tr 4],	[+Vn 8]	'harden'
<u>var</u>	I, [+tr 3],	[+Vn 7]	'come'
vari (imp.: vaa)			



<u>vari</u>	I,	[+caus 2], [+Vn 1]	'bind tightly'
<u>varuNt</u>	I,	[+tr 1], [+caus 1], [+Vn 12]	'suffer, feel sorry'
<u>vali</u>	II,	[+tr 6] [+caus 2], [+Vn 8]	'row, convulse'
<u>volu</u>	II,	[-imp], [+tr 4], [+Vn 13]	'strengthen'
<u>va aNk</u>	I,	[+tr 3], [+Vn 12]	'be in use'
<u>va att</u>	I,	[+caus 2], [+Vn 1]	'cause to lie down'
<u>va ay</u>	I,	[+tr 5], [+caus 2], [+Vn 1] [+Vn 7] [+Vn 8]	'encircle, bend, persuade'
<u>va ar</u>	I,	[+tr 5], [+caus 2], [+Vn 8]	'grow'
<u>va ava a</u>	II,	[+tr 4], [+Vn 8]	'blab'
<u>va i</u>	I,	[+tr 5], [+caus 2], [+Vn 1] [+Vn 3] [+Vn 8]	'let drops fall, scoop'
<u>va uk</u>	I,	[+tr 1], [+caus 1], [+Vn 1] [+Vn 2]	'slip'
<u>va uNt</u>	I,	[+caus 2], [+Vn 1]	'scrape'
<u>va uva u</u>	II,	[-imp], [+tr 4], [+Vn 8]	'be slippery'
<u>vaRa </u>	I,	[-imp], [+tr 2], [+caus 1], [+Vn 3]	'dry, parch'
<u>vaRu</u>	II,	[+caus 2], [+Vn 1] [+Vn 8]	'roast, fry'
<u>vaRuk</u>	I,	[+tr 3], [+Vn 1]	'flee'
<u>vaaNk</u>	I,	[+caus 2], [+Vn 1]	'buy, get'
<u>vaaci</u>	II,	[+caus 2], [+Vn 8]	'read'
<u>vaat </u>	I,	[+tr 1], [+caus 1], [+Vn 1]	'wither, blight'
<u>vaay</u>	II,	[-imp], [+tr 4], [+Vn 8]	'get a chance'

<u>vaar</u>	I, [+tr 5], [+caus 2], [+Vn 8]	'drip, pour'
<u>vaaḷ</u>	I, [+tr 3],	[+Vn 7] 'live'
<u>vaaḷi</u>	II, [-imp], [+tr 4],	[+Vn 8] 'grow luxuriently'
<u>vikḱ</u>	I,	[+Vn 1] 'hiccup'
<u>vicaari</u>	II,	[+caus 2], [+Vn 8] 'inquire'
<u>vicaali</u>	II, [-imp], [+tr 4],	[+Vn 8] 'widen'
<u>vicukḱ</u>	I,	[+caus 2], [+Vn 1] 'fan, throw hand to strike'
<u>viṭ</u>	I,	[+caus 2], [+Vn 9] 'leave'
<u>viṭaay</u>	II, [-imp], [+tr 4],	[+Vn 8] 'feel thirsty'
<u>viṭi</u>	I, [-imp],	[+Vn 7] 'dawn'
<u>vitay</u>	II,	[+caus 2], [+Vn 8] 'sow'
<u>vim</u>	I, [+tr 3],	[+Vn 1] 'sob'
<u>viraṭṭ</u>	I,	[+caus 2], [+Vn 1] [+Vn 4] 'drive away, chase'
<u>viri</u>	I, [+tr 5], [+caus 2],	[+Vn 1] [+Vn 7] 'unfold'
<u>virooti</u>	II,	[+caus 2], [+Vn 8] 'create enmity'
<u>vil</u>	II,	(Vn.: vilay) 'sell'
<u>vilak</u>	I, [+tr 1], [+caus 1],	[+Vn 1] 'leave, expel'
<u>vilāNk</u>	I, [+tr 1], [+caus 1],	[+Vn 12] 'be famous, shine'
<u>vilatt</u>	I, [+tr 3],	[+Vn 1] 'evade'
<u>vilay</u>	I, [+tr 5], [+caus 2],	[+Vn 1] 'grow in abundance'
<u>vilayaaṭ</u>	I, [+tr 3],	[+Vn 4] 'play'

<u>vi aac</u>	I,	[+caus 2], [+Vn 1]	'strike'
<u>vi u</u>	I,	[+trv2], [+caus 1], [+Vn 9]	'fall'
<u>vi uNk</u>	I,	[+caus 2], [+Vn 9]	'swallow'
<u>viRay</u>	II,	[+tr 4], [+Vn 8]	'freeze, cramp'
<u>viRaaNt</u>	I,	[+caus 2], [+Vn 1]	'scratch'
<u>viinK</u>	I,	[-imp], [+tr 3], [+Vn 12]	'swell'
<u>viic</u>	I,	[+tr 6], [+caus 2], [+Vn 5]	'blow, fan, throw'
<u>viiri </u>	I,	[+tr 3], [+Vn 1]	'cry aloud'
<u>ve i</u>	II,	[-imp], [+tr 4], [+Vn 8]	'crack'
<u>ve t</u>	I,	[+caus 2], [+Vn 4]	'cut'
<u>vetuNp</u>	I,	[-imp], [+tr 1], [+caus 1], [+Vn 1]	'scorch'
<u>veNp</u>	I,	[-imp], [+tr 3], [+Vn 1]	'become premat- urely old'
<u>veppi</u>	II,	[-imp], (Vn.: veppam)	'be too warm'
<u>veru </u>	I,	[+tr 2], [+caus 1], [+Vn 1] [+Vn 3]	'be scared'
<u>vel</u>	I,	[+caus 2], (Vn.: vetti)	'win'
<u>ve i</u>	II,	[-imp], [+caus 2], [+Vn 8]	'become bright'
<u>ve iR</u>	I,	[-imp], [+tr 3], [+Vn 1]	'become pale'
<u>ve u</u>	II,	[+caus 2], [+Vn 9]	'wash'
<u>veRi</u>	I,	[-imp], [+tr 4], [+Vn]	'intoxicate'
<u>veRu</u>	II,	[+caus 2], [+Vn 8]	'hate, dislike'
<u>veek</u>	I,	[-imp], [+tr 3], (Vn.: vekkay)	'get cooked'
<u>veeNt</u>	I,	[+caus 2], [+Vn 1]	'buy, get'
<u>veer</u>	II,	[+tr 4], [+Vn 9]	'perspire'

<u>nakkk</u>	I,	[+caus 2], [+Vn 1] [+Vn 10]	'lick'
<u>naci</u>	I,	[+tr 5], [+caus 2], [+Vn 11]	'press'
<u>nocuNk</u>	I,	[+tr 1], [+caus 1], [+Vn 1]	'crush'
<u>noccari</u>	II,	[+caus 2], [+Vn 8]	'grumble'
<u>naṭ</u>	I,	[+caus 2], [+Vn 9]	'plant'
<u>naṭa</u>	II, [+tr 2], [+tr 4]	[+caus 1], [+Vn 8] (Vn.: naṭay, naṭattay)	'walk, held, conduct'
<u>naṭi</u>	II, [+tr 4],	[+Vn 8]	'act'
<u>naṭuNk</u>	I, [+tr 3],	[+Vn 1] [+Vn 12]	'shiver'
<u>natt</u>	I, [-imp],	[+caus 2], [+Vn 1]	'desire'
<u>naNp</u>	I, [+caus 2],	(Vn.: naNpikkay)	'believe'
<u>naray</u>	II, [-imp],	[+tr 4], [+Vn 1]	'become grey'
<u>naradNk</u>	I, [-imp],	[+tr 3], [+Vn 1]	'become thin'
<u>naṭuv</u>	I, [+tr 3],	[+Vn 1]	'slide, escape'
<u>naRukk</u>	I,	[+caus 2], [+Vn 1]	'gash'
<u>nan</u>	I,	[+caus 2],	'nibble'
<u>nanay</u>	I, [+tr 5],	[+caus 2], [+Vn 1]	'get wet'
<u>naaṭ</u>	I, [-imp],	[+caus 2], [+Vn 12]	'desire'
<u>naaṭṭ</u>	I,	[+caus 2], [+Vn 9]	'plant'
<u>naaR</u>	I, [-imp],	[+tr 3], [+Vn 1]	'stink'
<u>niccayi</u>	II,	[+caus 2], [+Vn 8]	'decide'
<u>niNti</u>	II,	[+caus 2], [+Vn 8]	'reprimand'
<u>nippaaṭṭ</u>	I,	[+caus 2], [+Vn 1]	'stop, halt'
<u>nimiNṭ</u>	I,	[+caus 2], [+Vn 1]	'steal'
<u>nimir</u>	I, [+tr 2],	[+caus 1], [+Vn 1]	'straighten'

<u>niyami</u>	II,	[+caus 2], [+Vn 8]	'appoint'
<u>niraNp</u>	I,	[+tr 1], [+caus 1], [+Vn 1]	'fill'
<u>niray</u>	II, [-imp],	[+tr 4], [+Vn]	'queue'
<u>nil</u>	II,		'stand'
(nil + +Nt ) +tns +pst			
<u>nilay</u>	II, [-imp],	[+tr 4], [+Vn 8]	'endure'
<u>niRa</u>	II, [-imp],	[+tr 4], [+Vn 11]	'change colour'
<u>niRay</u>	I,	[+tr 5], [+caus 2], [+Vn 7]	'fill'
<u>niRu</u>	II,	[+caus 2], [+Vn 9]	'weigh'
<u>niRutt</u>	I,	[+caus 2], [+Vn 1]	'stop, straighten'
<u>niRuv</u>	I,	[+caus 2], [+Vn 1]	'prove'
<u>ninay</u>	II,	[+caus 2], [+Vn 8]	'remember'
<u>niiNk</u>	I,	[+tr 1], [+caus 1], [+Vn 1]	'leave'
<u>niiNt</u>	I,	[+tr 3], [+Vn 1]	'swim'
<u>niiI</u>	I,	[+tr 2], [+caus 1], [+Vn 11]	'lengthen, prolong'
<u>nuṇukk</u>	I,	[+caus 2], [+Vn 11]	'make it so tiny'
<u>nuray</u>	II, [-imp],	[+tr 4], [+Vn]	'produce foam'
<u>nuI</u>	I,	[+caus 2], [+Vn 4]	'pinch'
<u>nuIay</u>	I,	[+tr 5], [+caus 2], [+Vn 7]	'enter'
<u>nuur</u>	I,	[+tr 5], [+caus 2], [+Vn 1]	'switch off'
<u>neIu</u>	II, [+tr 4],	[+Vn 1]	'grow tall'
<u>neNp</u>	I,	[+tr 3], [+Vn 1]	'exert pressure'
<u>ney</u>	I,	[+caus 2], [+Vn 1]	'weave'

<u>neri</u>	I, [+tr 5], [+caus 2], [+Vn 1] 'grind or pound [+Vn 7] to small particles, squeeze into a restricted space'
<u>neruNk</u>	I, [+tr 1], [+caus 1], [+Vn 1] 'come closer; [+Vn 12] crowd'
<u>neruneru</u>	II, [-imp], [+tr 4], [+Vn 8] 'have a feeling as of being pricked'
<u>ne i</u>	I, [+tr 5], [+caus 2], [+Vn 1] 'incline' [+Vn 7]
<u>neRuNp</u>	I, [+caus 2] [+Vn 1] 'grind one's teeth in sleep or anger'
<u>neer</u>	I, [+caus 2] [+Vn 1] 'take a vow'
<u>no t</u>	I, [+caus 2], [+Vn 1] 'knock'
<u>no i</u>	II, [+caus 2], [+Vn 8] 'munch'
<u>noNt</u>	I, [+tr 3], [+Vn 1] 'limb' [+Vn 10]
<u>noy</u>	I, [+tr 3], [+Vn 1] 'become loose'
<u>noruNk</u>	I, [+tr 1], [+caus 1], [+Vn 1] 'grind or pound to small particles'
<u>no uno u</u>	II, [-imp], [+tr 4], [+Vn 8] 'be succulent and fleshy'
<u>noo</u>	I, [-imp], [+tr 3], [+Vn] 'pain'
(noo + k + <sup>um</sup> iR ) +tns -pst	
(no + +tns ) +pst	

## APPENDIX II

<u>a</u>	[-neg, -fin, +part, -adv part (+adj part) ]
	[-neg, -fin, -part (+infin) ]
<u>a[um</u>	[-neg, +fin, -ind, -imp (+opt) ]
<u>atu</u>	[ +fin, +ind, +part n, -pl, -hum]
<u>atuka]</u>	[ +fin, +ind, +part n, +pl, -hum]
<u>atukku]a</u>	[+mod, -fin, +temp adj]
<u>am</u>	[+fin, +ind, +I, +pl, +hum]
	[+fin, +ind, +Vn 11]
<u>al</u>	[+fin, +ind, +Vn 1]
<u>alaam</u>	[-neg, +fin, -ind, -imp (+opt) ]
<u>avaa</u>	[+fin, +ind, +part n, -pl, +fem, +hon, +hum]
<u>avaya]</u>	[-neg, +fin, +ind, +III, +pl, +mas, +fem, +hum]
	[+fin, +ind, +part n, +pl, +mas, +fem, +hum]
<u>avar</u>	[-neg, +fin, +ind, +III, -pl, +mas, +hon, +hum]
	[+fin, +ind, +part n, -pl, +mas, +hon, +hum]
<u>ava]</u>	[-neg, +fin, +ind, +III, -pl, +fem, -hon, +hum]
	[+fin, +ind, +part n, -pl, +fem, -hon, +hum]
<u>ava]uka]</u>	[-neg, +fin, +ind, +III, +pl, +fem, -hon, +hum]
	[+fin, +ind, +part n, +pl, +fem, -hon, +hum]
<u>avan</u>	[-neg, +fin, +ind, +III, -pl, +mas, -hon, +hum]
	[+fin, +ind, +part n, -pl, +mas, -hon, +hum]
<u>avaNka]</u>	[-neg, +fin, +ind, +III, +pl, +mas, -hon, +hum]
	[+fin, +ind, +part n, +pl, +mas, -hon, +hum]



<u>an</u>	[-neg, +fin, -ind, +imp, -eq, -hon] [+fin, +ind, +I, -pl, +hum]
<u>aa</u>	[+fin, +ind, +III, -pl, +fem, +hon, +hum] [+neg]
<u>aaNka]</u>	[+fin, +ind, +III, +pl, +mas, -hon, +hum]
<u>aam</u>	[+report]
<u>aaY</u>	[+fin, +ind, +II, -pl, -eq, -hon]
<u>aar</u>	[+fin, +ind, +III, -pl, +mas, +hon, +hum]
<u>aal</u>	[-neg, -fin, +part, +adv part, +cond]
<u>aa]</u>	[+fin, +ind, +III, -pl, +fem, -hon, +hum]
<u>aa]uka]</u>	[+fin, +ind, +III, +pl, +fem, -hon, +hum]
<u>aan</u>	[+fin, +ind, +III, -pl, +mas, -hon, +hum]
<u>i</u>	[-neg, -fin, +part, +adv part, -cond] [+fin, +ind, +Vn 10]
<u>icc</u>	[+Vst I, +tns, +pst, -hum]
<u>iya]</u>	[+fin, +ind, +II, +pl, +mas, +fem, +hum]
<u>iru</u>	[+asp, +perf]
<u>it</u>	[+asp, +comp]
<u>it]aal</u>	[+neg, -fin, +part, +adv part, +cond]
<u>iR</u>	[+Vst I, +tns, -pst, +prt, +hum]
<u>in</u>	[+Vst I, +tns, +pst, +hum]
<u>inam</u>	[+fin, +ind, +III, +pl, +mas, +fem, +hum]
<u>iiNka]</u>	[+fin, +ind, +II, -pl, -eq, +hon, +hum]
<u>iir</u>	[+fin, +ind, +II, -pl, +eq, -hon, +hum]

<u>u</u>	[-neg, +fin, -ind, +imp, -eq, -hon]
	[-neg, -fin, +part, +adv part, -cond]
	[+Vn 4]
<u>uNkoo</u>	[+fin, -ind, +imp, -eq, +hon]
<u>u[ana</u>	[+mod, +temp adj]
<u>utu</u>	[+fin, +ind, +III, -pl, -hum]
<u>um</u>	[+fin, -ind, +imp, +eq, -hon]
	[+Vst I or II, +tns, -pst, -prt, -hum]
<u>eN[u</u>	[+quot]
<u>ee</u>	[+inter]
<u>eelaatu</u>	[+mod, +supp, +neg]
<u>eelum</u>	[+mod, +supp, +neg]
<u>oo</u>	[+inter]
<u>kuu[oaatu</u>	[+mod, +supp, +neg]
<u>kuu[um</u>	[+mod, +supp, -neg]
<u>koN[iru</u>	[+asp, +prog]
<u>ko]</u>	[+asp, +reflex]
<u>kkiR</u>	[+Vst II, +tns, -pst, +prt, +hum]
<u>cey</u>	[+mod, +caus]
<u>ta</u>	[+neg, -fin, -ind, +imp]
	[+neg, -fin, +part, -adv part (+adj part) ]
<u>ta]</u>	[+asp, +rid]
<u>tulay</u>	[+asp, +dis]
<u>paŋ</u>	[+mod, +caus]
<u>paar</u>	[+asp, +tri]

<u>piRaku</u>	[+mod, +temp adj]
<u>pooɭ</u>	[+asp, +comp]
<u>pp</u>	[+Vst II, +tns, -pst, -prt, +hum]
<u>ppam</u>	[+Vn 13]
<u>ppi</u>	[+tr 4]
	[+caus 2]
<u>ppu</u>	[+Vn 8]
<u>mal</u>	[+neg, -fin, +part, +adv part, -cond]
<u>may</u>	[+Vn 14]
<u>muɭiyaatu</u>	[+mod, +supp, +neg]
<u>muɭiyum</u>	[+mod, +supp, -neg]
<u>vay</u>	[+asp, +uti]
	[+mod, +caus]
	[+Vn 9]
<u>vi</u>	[+tr 3]
	[+caus 1]
	[+caus 2]
<u>vu</u>	[+Vn 7]
<u>veenqam</u>	[+mod, +prop, +neg]
<u>veenqum</u>	[+mod, +prop, -neg]
<u>naaŋkaɭ</u>	[+fin, +ind, +I, +pl, +hum]
<u>naan</u>	[+fin, +ind, +I, -pl, +hum]
<u>nii</u>	[+fin, +ind, +II, -pl, -eq, -hon, +hum]
<u>niiŋkaɭ</u>	[+fin, +ind, +II, -pl, -eq, +hon, +hum]
<u>[+obs]</u>	[+Vst I, +tns, +pst]
	[+tr 1]

[+obs][+obs]

[+Vst II, +tns, +pst]

[+tr 2]

[+nas][+obs]

[+Vst I or II, +tns, +pst]

[+obs]al

[+Vn 2]

[+obs]am

[+Vn 12]

[+obs]u

[+Vn 5]

[+obs][+obs]al

[+Vn 3]

[+obs][+obs]u

[+Vn 6]

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